The Journal of the
American Medical Association

VOL. XIX. CHICAGO, AUGUST 6, 1892. No. 6.

AMERICAN MEDICAL ASSOCIATION.

SECTION ON PRACTICE OF MEDICINE.

(*Concluded from page 132.*)

The next paper read was entitled

DARWINISM AND DISEASE.

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Before commencing this, to me, extremely interesting subject, I wish to say that I do not appear before you either as a full-fledged Darwinist or an expert pathologist, but as a mere dabbler in both, who has succeeded in raking up, together with much mud, a few oysters which he thinks contain pearls. Only a moiety of the collection displayed is original, but the method of arrangement is entirely so. The subject, of course, is an enormous one and one of which only the merest outlines can be given within the limits of the time allotted. I fear it will seem to some of you that setting two such "dark continents" to illuminate one another is much like calling upon one sphinx to explain another, a sort of "blind leading the blind," but as a matter of fact, even the mere inkling of the relations between the two which we have already attained makes pathology with its "magnificent schemes of decay" not only intensely interesting and *alive* but even optimistic and cheerful. I shall not attempt, of course, to define either of these subjects, Spencer's definition of Darwinism—"undifferentiated homogeneity," etc., would alone very nearly take up the time at my disposal. The first thing that might strike us is that Darwinism and pathology have apparently nothing to do with each other, nothing in common. Darwinism has to do with life and pathology with death, or the dead-room at least. But this is merely an apparent distinction, for from the Darwinist's point of view, disease is merely life out of place, life misdirected. Many processes in pathology tend towards somatic death, but death itself requires no process or influence, save that of gravity, is a mere negation, and every disease-process is a vital process on the part of the cell-groups concerned.

Perhaps a very brief outline statement of the Darwinian hypothesis as applied to cell-life would be advisable as a basis for our discussion. Cell-Darwinism may be briefly expressed as follows: That all cells have a constant tendency to vary; that these variations are capable of being inherited by their descendants; that by the action of surrounding forces known as "the pressure of the environment," these variations however small, can be so "selected" that those which are of benefit to the individual are preserved and encouraged, or more correctly, that the cells possessing such favorable variations are thereby given an advantage in the struggle for existence. Finally, that by the cumulative effects of inheritance and of use and disuse, useful variations may be indefinitely preserved and developed and useless ones diminished or eliminated.

The first thing that strikes us, in looking at the subject from this point of view, is that the cells are emphatically "*the* people." It is the insignificant little citizen-cells of the body-republic which really control the destiny of the whole. Our "Ego" instead of being a "lord of creation" is a mere congressman, absolutely at the mercy of his constituents. No matter how each "voter" may have modified himself, he still has all the possibilities and caprices of life contained in him. Each of the cells is to be regarded as an individual and entitled to all the rights of such. Not only so, but each of these cells has an independent existence and though fortunately their usual action goes to nourish and is in the best interests of, the body, as a whole, yet they have also a perfect right to "life, liberty, and the pursuit of happiness" on their own account. We have been too much inclined to regard our tissue cells as our forefathers regarded all the lower animals, as if their only excuse for being, was the use which they might be in supporting our own lordly existences. They have rights of their own and will assert them if we ignore them too persistently. Indeed, most of our disease-processes seem to be due to the setting-up of the cell for itself, without regard for the welfare of the rest of the organization. These tiny units have a life-history, pedigree and inherited tendencies and characteristics. Even where individual cells array themselves in such a way as to seem actually hostile, and work great damage to the rest of the body, they are simply carrying out their own life-processes, with the best of intentions, and in many cases these same processes become actual safeguards against the spread of disease. I am convinced, that there is no such thing as malevolent or malignant action, but that on the contrary the majority of disease-processes are life-processes and intended for the service, not only of the cell itself, but also of the rest of the body. If the cells can't do just what they have been accustomed to, they will go on and do the very next best thing.

To illustrate what I mean, I might cite the processes of repair and hypertrophy, which differ only in degree: Let the stimulus or irritant be of moderate intensity and the tissue-elements promptly multiply after their kind, and increased vigor of muscle or resisting power of epidermis is developed, but let it become intense enough to cause destruction and loss of tissue and the cells can only replace part of the loss in perfection. For the remainder, they drop one step in vital rank and fill the gap with mere connective-tissue. This is the ultimate process of aseptic surgical repair, the leucocytes and fibrin merely acting as temporary "adhesive-straps" or as food for

the tissue-cells in their rapid multiplication. If the lesion be accompanied by poisons which paralyze the cells or throw them into furious abortive multiplication and at the same time attract the leucocytes in such myriads that they choke and crush one another to death in thousands, then and then only is suppuration with its appalling train of surgical fever (more properly termed "unsurgical fever"), septicæmia, pyæmia, etc., set up. Inflammation is at bottom simply the forced "feeding up" of the cells, for rapid breeding to repair loss. "Whatsoever is more than this cometh of evil." The old pre-Listerian methods of surgical healing, were a good deal on the principle, so humorously attributed by Charles Lamb to the Chinese, of burning down a house every time they wanted to roast a pig.

This life-history and pedigree of our cells, of which we have spoken, is shown by innumerable instances of that curious process known as reversion,[1] the reappearance of traits and qualities peculiar to a more or less remote ancestor, but quite out of keeping in the cells themselves. These may be divided into partial, or local and general, or diffused. The partial may again be divided into Vestigia, or those affecting whole organs or parts, and Degenerations, or those affecting general groups of tissues. We will now rapidly glance at a few instances of the first of these, which are among the most interesting of all the different processes. The first and probably most striking is that curious and interesting rudiment, the external ear. As it at present exists, with its graceful outline and elaborate curves and recesses it looks as if it surely meant something, was there for some purpose; but careful experiments have shown that sound will be received just as well, if it be cut off close to the head and it is immobile so that it cannot be used as a means of determining the direction of sounds by "pricking" it. In fact, it seems utterly useless and is scarcely ornamental enough to account for its presence on that ground alone. What then is the *raison d'etre* of this curious appendage? Its analogy to the auricle of the carnivora and herbivora is at once apparent. The tiny rudiments of muscle which are attached to it, though now utterly useless and powerless, point clearly enough to its relations in this direction, but for its origin we must go much further back. It is a familiar fact that the human embryo, in the early stages of its development, presents a distinct reversion to its fish-like ancestors, in the form of gill-slits. These, in the shark, where they are found in their greatest perfection, are protected by flaps known as opercula, or gill-covers, and these are the starting-point of the innumerable forms of the mammalian and human auricle. The external meatus is the remains of the first branchial cleft and the auricle, of the flap which covered it. But, someone will say, were not the other gill-slits provided with opercula, and if so, what has become of them? Pathology promptly answers the question. They also reappear, not at all unfrequently, in those curious appendages known as cervical auricles. These are little tags or prominences which make their appearance at various points along the anterior border of the sterno-mastoid, and the possibility of their being mere "freaks" or "sports" is emphatically negatived by the fact, first, that they contain not merely the areolar tissue of the neighborhood but fragments of cartilage and striped muscle and fat, the basal substance of the genuine auricle, and second, by the fact, that they are sometimes accompanied by and always appear at the points of opening of branchial fistula or congenital cysts of the neck which represent the partially closed lower gill-clefts. These may be either closed at both ends, forming cysts, open at one end, forming diverticula, or open at both ends, so that milk taken into the pharynx will ooze out upon the surface of the neck. In some cases these projecting growths will attain nearly half the size of the auricle proper. They are, of course, comparatively unfrequent, but a curious side light is thrown upon their probable frequence in earlier days, by the fact that many of the statues and paintings of those mythical creatures, fauns and satyrs, depict them with well-developed cervical auricles at about the position of the third branchial cleft. They are also comparatively common in goats and sheep, and it seems probable that their appearance in the sculptures and pictures is due to this fact.

These branchial clefts also furnish us with our second instance of reversion. There are situated in the fauces, a pair of little glands, which might be called the Sphynxes of philosophical anatomy. They have no recognized useful function. Their secretion is a matter of question both as to its nature and uses and yet they are one of the most annoyingly frequent seats of disease in the whole body. Our only method of defense against them appears to be the tonsillotome. The recent researches of Harrison Allen have thrown fresh light upon this subject, by showing the two so-called globular glands to be really merely pouches surrounded by glandular tissue, and a little embryological comparison reveals the interesting fact, that they are merely the dilated internal openings of the second branchial clefts, the walls of which have, so to speak, become infiltrated with lymphoid tissue, a process which, as we shall see, is very apt to take place around the extremity of any of these rudimentary fistulæ.

Another of these curious "remnants" is the appendix vermiformis of the cæcum, a structure which had no imaginable useful vocation, but a very active one apparently, in the opposite direction, as a "death trap," and which is the atrophied remains of the enormously elongated cæcum of the herbivora and quadrumana. Here again the same curious aggregation of lymphoid tissue at the end of the passage has taken place, and it is in this, more than in the interior of the appendix itself that the much dreaded perityphlitis or appendicitis takes place. Another illustration is found in those two curious little bodies known oddly enough, both by the name of the same anatomist, Luschka's tonsil in the vault of the pharynx and Luschka's gland at the tip of the coccyx. Time will not permit me to bring forward the evidence upon these points, but it is sufficient to warrant us in at least surmising that the tonsillar body and the anterior lobe of the pituitary body represent the atrophied canal of connection between the intestinal and spinal canals at their upper extremity, while the coccygeal gland together with a number of interesting tumors of this region, containing promiscuously sections of the ilium, even with villi and Peyers' patches side by side with short tubes of well-developed nervous tissue, represents the lower communication. The two tubes are now believed to have been originally continuous, so that the supposed an-

[1] For a masterly and intensely interesting presentation of this subject, see Bland Sutton's "Evolution and Disease."

tithesis or antipathy between "guts" and "brains" is hardly so well founded as was once imagined. The condition of central spina-bifida, on this hypothesis, is merely an instance of the familiar cystoid dilatation of an unused canal.

Space will barely permit me to mention by name several other of the leading instances of this sort of thing. For instance, wisdom teeth, those reversions to an ancestry which had five or six molars and jaws long enough to contain them; the extra incisors which appear at the edges of the pre-maxillary bone in extreme cases of hare-lip; the process of acne, which is merely an atrophied hair-gland, or as we call it, sebaceous gland, endeavoring to produce its normal hirsute tissue at the period of puperty; the frequency of Pott's fracture of the fibula in spite of the "splinting" effect of the tibia, which seems probably due to the fact that the fibula is a rapidly atrophying relic which may possibly ultimately disappear, as it has already done in equines, bovines and most other mammals. The two bones are of equal size at the third month in the embryo as well as in the manatee and some of the quadrumana. The great preponderance of equino-varus over all other forms of club foot, it being the normal position of the foot not only in our quadrumanous relatives but also in the embryo up to the seventh month. These are only a few of the most important of these partial reversions, for the tip of the forefinger can scarcely be laid upon a single part of the body which will not under some circumstances furnish us with one or more such proofs of our pre-human descent.

We now come to the other form of partial reversion, in which the change is confined to certain tissue groups and is much simpler in its nature, being what we term, merely a degeneration. These are the familiar four, arranged both in the order of their frequency and lack of vitality: The Caseous, Calcareous, Fatty and Fibroid. The first two of these can hardly be dignified by the term of vital process. They are simply the breaking down of the protoplasm of the cell into simpler and less highly-vitalized forms, and yet organic forms for all that. But the second of these is clearly only a form of vital action gone wrong, differing only from bone formation in that the cell dies or withdraws entirely and gives place to the inorganic lime salt instead of arranging it in such a way that it or its successors or appointees can still control the region. In other words, it vacates the premises entirely, instead of merely renting them. In many instances it is in itself a genuine conservative process changing an infective focus into a fixed and harmless foreign body, as in the case of tubercle and some forms of encystment. It also has obvious analogues in the processes of the protozoa and polyzoa, being the method by which the coral insect builds his reef, the globigerina forms the chalk beds and the squid his otoliths.

In fatty infiltration and degeneration we have another vital process gone very wrong indeed. A process which, under normal circumstances, is the very "savings bank system" of the body; protects the delicate centers from every mechanical or caloric shock, lubricates the movements of the muscles, and is simply indispensable as a store-house of energy. It is, however, so easy to form that it is no uncommon thing for higher cells in all parts of the body to produce it instead of their legitimate product, through laziness or enforced idleness, in some cases at the expense of their own protoplasm. If there be a sufficient number of healthy cells in the neighborhood to promptly devour the fat and work it up into fresh tissue, it is in some lights almost a conservative change, but if not, then results of all degrees of disastrousness may ensue. This process may take place outside of the body just as well, as the familiar instances of the formation of adipocere and the ripening of cheese bear witness.

The highest and most important, and, in many cases, most deadly of these degenerations is the fibroid. Here we have a reversion of a considerably higher character and more difficult of accomplishment on the part of the cells and one, which, in intention at least, would appear to be always conservative, though its results may often be far otherwise. As seen in the formation of scar tissue, in the fibrous envelopes around tubercle, in the wall of abscesses, in the coating of encysted foreign bodies, and in the repair of tendons, it simply is indispensible, but on the other hand where it takes the place of more highly specialized tissues like kidney epithelium or the gray matter of the spinal cord, it is one of the most dangerous and unmanageable of processes. The rationale of its formation is a highly disputed question, but the most probable explanation appears to be that it is an actual substitution by the cells involved of a lower for a higher form of reproductive product. This may be due to almost any form of over-stimulation, whether by over-work, excessive mechanical tension or pressure, or by the presence of a virus, and would appear to be associated with a sthenic condition of the system rather than an asthenic.

We have heretofore been considering diseases in which the process is merely one of degeneration of the cell-protoplasm itself, and has little or no direct connection with the individual vital processes of the cell as a unit. We now, however, have a form of disease which seems to consist of what we might term a reversion of function; a production on the part of the cell of an incomplete metabolic result which was normal in one of its comparatively remote ancestors. There is but one disease of this form, but it is a perfect "Pandora's box" of the evils to which flesh is heir, and that is the celebrated "*morbus dominorum* and *dominus morborum*"—gout, or as it is known at the present day, "Lithæmia." With all its innumerable varieties of manifestions, it seems at bottom to consist in a tendency on the part of the hepatic cells to form uric acid instead of urea. This, of course, as will readily be seen, is merely a reversion to the avian or reptilian stage in the ancestors of the liver cells, in both of which large classes, the elimination of the nitrogenous materials of the food is solely in the form of uric acid; indeed, Garrod remarks that "our gouty patients seem to be a sort of birds." The world-wide prevalence of this tendency has, I think, been very much under-estimated. In spite of the fact that gout is supposed to be, and in its more frank manifestations, unquestionably is, a rare disease in this country, I am satisfied that a large portion of our celebrated national "dyspepsia," most of our "biliousness," all of our lumbago, muscular rheumatism and not a little of our neuralgia are due to this degenerative tendency, to the loading of the blood with the half finished products of the hepatic cells. And, indeed, from the investigations

of Fothergill, it would seem probable that the initial change in the terrible Bright's disease itself, is first a hyperplasia of the muscular coat of the arterioles, due to irritation caused by the presence of these substances in the blood, ending, as all over-stimulation will, in fibroid degeneration, the "arterio-capillary fibrosis." If this process be a reversion to the point of departure of two of the largest branches from the main trunk of our family tree, its wide-spread prevalence is readily explainable. The methods which have proved most permanently beneficial in its treatment would appear to point in the same direction, being principally such as will improve the tone of the system in general and the liver-cells in particular, supplying them with abundance of fresh air, sun-light and vigorous exercise. In short, all those means which would lift us as far above the reptilian stage as possible.

We still have a large number of disease-processes, probably the most interesting, to the pathologist, of all the series, which may, perhaps, be best described as "reproductive" reversions. I refer to the so-called "new-growths" or "new-formations," and would arrange them in the following order of ascending vitality and perfection. This may seem a wanton infraction of some of the recognized rules of pathological classification but I am convinced that they are related, at least remotely, in some such way. They comprise: 1, and lowest of all, Tubercle; 2. Gumma; 3. Malignant tumors; 4. Benign tumors; and 5, and highest of all, Hypertrophy, or regeneration. In all these, the essential factor appears to be a tremendous stimulation of the function of reproduction on the part of the individual cells of the group affected, with results ranging in perfection, from the lowest to the highest of the series.

In tubercle, the process would appear to be one of rapid multiplication of connective-tissue cells by endogenous fission—"giant cells"—at various foci, the determining cause apparently being starvation, under-feeding, or mal-nutrition of the cells concerned, thus leading them to rush hurriedly into reproduction, as a means of avoiding extinction, much in the same way as plants, grown in sterile soil, run to seed. Animals hard pressed by their environment appear to become more prolific, and even the human family itself, where the food is scantiest and struggle severest, appears to have the highest degree of fertility. The perfection of most of our improved varieties of animals or plants seems to be dependent largely upon the lateness of the period to which the reproductive act can be postponed. The products of tubercular multiplication, born in a soil already impoverished, remote from the blood-vessels, bear the stamp of their parental weakness and are not only incapable of continued existence, but even of any form of degeneration except the caseous. They can set up fibroid degeneration in the sturdier tissues surrounding them, but all that they themselves seem capable of, is to rot and make a meal of carrion for the tubercle bacillus. What part the bacilli play in this process is hard to determine, but it would seem a secondary one as they do not usually appear until after the tubercular formation has taken place and caseation set in. The enormous frequency of the tubercular process in the human subject—it now being estimated that it occurs in nearly 60 per cent. of all human beings at some period of their lives—the great importance of the pre-tubercular condition, the readiness with which the disease is induced in animals, merely by confinement or starvation (nearly two-thirds of the deaths in confinement of animals being due to this cause), the utter failure of all bactericide remedies and the gratifying results obtained from fresh air, sun-light, high elevation and outdoor exercise at any reasonable stage of the disease, all point in the direction of its being due to some general tissue tendency, rather than to a specific external cause. It might almost be termed the "starvation reflex" of all living tissue.

In the second process, viz., gummatous formation, we have a similar but more violent determination on the part of the tissue-cells in various localities to "be fruitful and multiply" no matter what comes of it. The cause in this instance appears to be a specific virus. It differs in that the formation is much more rapid, is participated in by a larger body of cells, and the resulting product is a stage higher in the grade of vitality. It is capable not only of maintaining its existence, in the form in which we find it, for some little period of time, but also of the comparatively valuable and conservative process of fibroid degeneration. A gumma may result in a mass of scar tissue, a tubercle, only in a caseous or calcareous nodule.

The next rank in order of perfection, is that of the so-called malignant tumors. Here the cells, instead of being merely amœba-like, with simply a capacity for degeneration, bear a more or less ghastly resemblance to the parent cell. If the connective tissue be the starting point, we have the sarcoma, dangerous just in proportion to the imperfection of the offspring produced, ranging from the nearly amœba-like or embryonic "small round-cell," with its intense malignity, to the almost benign "spindle-cell" or "myeloid." If the glandular or epithelial tissue be the starting point, we have the deadly brood of carcinomata, again varying in their dangerousness, according to the imperfection of the spurious product turned out. A cancer may be described as a parody upon gland tissue—and a hideous parody it is. Here there seems to be little difficulty in determining one, at least, of the predisposing causes, and that is, senility of tissue, its having outlived its usefulness. The mammary gland in the female, after the child-bearing period, the uterus at the same period, and the wrinkling, shrivelling lip or baggy eyelid of the toothless old man, furnish an enormous proportion of the cases of this terrible "rebellion of the cells," as it has been well called.

The next class, although of apparently less importance from a pathological standpoint, is quite an extensive one, and includes the so-called benign tumors. Here the reproductive process is orderly and perfect in and of itself, and is merely not in harmony with the demands of the rest of the system. We are utterly in the dark as to the predisposing cause. All that we know is that certain groups of cells in the various parts of the body suddenly commence to reproduce themselves in a perfectly orderly and methodical manner, but without any reference to their result upon the general body system, with which they interfere simply by their bulk or mechanical properties. Here again the frequency is in direct relation to the simplicity, or to the easiness, so to speak, of the imitation. The simplest tissue to imitate on the part of any of the body cells is the fatty,

and we find lipomata at the head of the list, both in point of frequency and simplicity. Next, in the same double order, come the fibromata, a little more difficult of production, less frequent, but more dangerous, then the myomata or unstriped muscle tumors, and the more complex but much less common adenomata, with their astonishing mimicry of healthy glandular tissue, and last and rarest of all, because most highly specialized and most difficult of imitation, the neuromata and rhabdomyomata or striped muscle tumors.

The apex of the pyramid is reached by the processes of physiological or compensatory hypertrophy and surgical regeneration, where the reproductive product is not only perfect in itself, but in accurate harmony with the needs of the whole system, the whole series varying in its benignity or malignity in proportion to the remoteness, so to speak, of its reversion. Between the almost universal and fearfully disastrous tubercle, with its mere possibility of caseation, to the gloriously beneficent physiological hypertrophy of the uterus or heart or the every-day miracle of surgical regeneration, it is merely a question of the vital perfection of the daughter-cells.

Would time permit I should like to take up the still more individualized action of the cells in the various forms of leucocytosis in its bearing upon this theory. The whole process of fever and inflammation would appear to be a genuine battle of cells begun by a skirmish-line of leucocyte mounted police and continued by seried ranks of macrophage militia, recruited from the sturdy citizen-cells of the fixed tissues. The wonderful and fascinating process of phagocytosis is a complete epic poem of more than Homeric interest. The extraordinary facts of the immunity-problem prove the eminent ability of the cells of the body to defend themselves against all comers, however evilly disposed, while the singular rhythm of weeks, or lunar months, displayed by the reproductive process, the menstrual functions, the intermittences in the malarial fevers and even by the period of lysis and crisis of various diseases, would appear at least to suggest an impress upon the fixed cells of our body which has been stamped upon them from the time that their ancestors lay upon the sea-beach and depended upon the rhythmic rise and fall of the tides, for their very existence.

I have no doubt that to the most of you this will appear merely a matter of possibly interesting, but utterly impracticable and useless theory. But, to my mind, the practical teaching of the suggestion is its most valuable part. Not by a search for specifics or germicides or by efforts to extinguish germs which are a million times as numerous as the human family and in their proper place quite as useful—our best friends instead of our deadliest enemies—but by an untiring and intelligent watchfulness to grasp every means which can improve nutrition, elevate the standard of vitality, increase the beauty and symmetry of and in every way possible strengthen and develop these wonderful bodies of ours is our noble aim to be attained. A healthy stomach or bronchus is the hottest place a disease germ can drop into. The most powerful enemy of death and disease is life in its most vigorous form and our mission, as already beautifully paraphrased in religious imagry, is that our patients "might have life and that they might have it more abundantly."

Dr. Herrick, of Cleveland, expressed gratitude to the author of the paper. It looks, he said, like getting back to solid ground, and I heartily commend its contents.

Dr. Eckert, of Iowa, stated that the paper met his approval in several ways. He thought it broke down the popular misconception of Darwinism. He thought that it also harmonized modern views of anatomy and pathology.

Owing to the lateness of the hour, and the happy anticipation of an excursion on Detroit river, under the auspices of the local profession, the papers remaining on the program were read by title, and the Section adjourned.

EUROPHEN, WITH CLINICAL REFERENCE TO EUROPHEN AND EUROPHEN-ARISTOL.

Read by title in the Section of Practice of Medicine at the Forty-third Annual Meeting of the American Medical Association, held at Detroit, Mich., June, 1892.

BY JOHN V. SHOEMAKER, A.M., M.D.,
OF PHILADELPHIA, PA.

Europhen results from the action of iodine upon isobutylorthocresol in a solution of iodine of potassium.[1] The product, as prepared and sent out by the Farbenfabriken, formerly Friedrich Bayer & Co., of Elberfeld, appears in the form of a fine, soft amorphous powder, slightly resinous to the touch, of a light yellow color, destitute of taste and having a faint, not unpleasant odor which recalls that of saffron. This odor is almost entirely lost when europhen is made into a mixture or solution. Europhen is insoluble in water and glycerine, soluble in alcohol, ether, chloroform and fixed oils. When exposed to a heat of 160° F., europhen thickens and at 230° F., is converted into a clear brown fluid. The specific gravity of europhen is five times less than that of iodoform and half that of iodol. The body is easily decomposed by light and heat. It should, therefore, be kept in a dark, dry and cold place and its solutions be made at a low temperature.

The average proportion of iodine contained in europhen is 27.6 per cent. A small precipitate, consisting of an organic iodine compound and soluble in water, forms from solutions of europhen. It is likewise present in the dry powder. A very small percentage of free iodine, formed during the drying and which cannot be removed from the product, is present in europhen. Solutions of europhen in alcohol and ether slowly liberate small amounts of iodine. Europhen should never be mixed with fat combined with starch. It is incompatible with metallic oxide and the salts of mercury. Fats free from starch are good excipients for europhen, and lanolin is particularly appropriate, since the large amount of water which it is capable of taking up promotes the liberation of the soluble iodine compound.

Siebel has determined that the presence of europhen in culture-media prevents the development of pathogenetic microörganisms by a chemical action and arrests the formation of products of decomposition.

Europhen adheres firmly to cutaneous and mucous surfaces with which it is brought in contact. Under the influence of liquid pathological products, it is believed to slowly give off small quantities of iodine which entering into immediate action, form the soluble organic compound of iodine to which reference has been made. When taken by the mouth, europhen undergoes but little change as it passes through the system. A very small proportion of iodine appears in the urine after its administration. It is removed from the body with the fæces for the

[1] The physical and chemical properties of europhen have been carefully studied by Dr. F. Goldmann and are described in the *Pharmaceutische Zeitung*, July 15, 1891.

most part unchanged. The alteration is scarcely greater when dissolved in oil and it can be subcutaneously injected. Europhen is, consequently, a non-toxic substance. Two or three drachms have been given to dogs without any ill effects and fifteen grains have been taken by the human subject with no more serious result than a slight sensation of weight in the stomach.

The first clinical experiments with europhen were undertaken by Dr. P. J. Eichhoff of Elberfeld, who published in the *Therapeutische Monatshefte* for July, 1891, the results of its employment in a series of cases. A chronic and obstinate ulcer of the leg, which had resisted the action of many other remedies, healed in six weeks under the application of a ten per cent. ointment of europhen. A deep and sluggish ulcer, dependent upon a marked varicose condition of the limb, was almost entirely cicatrized in five weeks by the same method of treatment. Several chancres were healed and their induration removed by the insufflation of europhen upon their surface in periods of from two to four weeks. The application of the powder removed, in three cases, large condylomata of the anus and genitalia in 10, 17 and 28 days. A case of syphilitic papules with leucoderma and marked thickening of both labia majora was relieved in the same manner. At the end of two weeks the papules had disappeared, but slight pigmentation remained and the labia were reduced nearly to their normal size. An ulcerated scrofuloderma of the arm in a girl of fourteen years cicatrized under a europhen ointment in 19 days. A ten per cent. salve was first used but giving rise to irritative eczema of the surrounding skin, was after three days, replaced by a five per cent. ointment. The irritation persisting in the same degree, however, at the end of three more days, a one per cent. preparation was applied. The healing process continued at an undiminished rate, and the eczema soon subsided. In a case of lupus vulgaris, after scraping the softened nodules with a sharp spoon, europhen powder was dusted upon the surface and a firm smooth scar was obtained by the eighteenth day. A burn of the third degree was cicatrized by a one per cent. ointment in 20 days. Chancroids were rapidly healed by application of the powder. In several cases of parasitic eczema europhen occasioned little or no improvement and was discontinued. The result was the same in a case of impetiginous eczema. Europhen in the form of a ten per cent. ointment, was less beneficial in a case of psoriasis than either aristol or tar. In a case of favus, likewise, europhen proved of no avail. An injection of europhen in olive oil and acacia was disadvantageous in two cases of acute gonorrhœa. It gave rise to pain and was abandoned. In a case of gonorrhœa of the urethra and cervix uteri, however, under the care of Dr. Siefert, of Wurzburg, a tampon impregnated with europhen caused speedy diminution of the discharge and disappearance of the gonococci. In a case of endometritis with erosions of the os uteri and a copious seropurulent discharge, a decided improvement followed. Dr. Petersen, of Wurzburg, reports satisfactory results from the insufflation of europhen in the rhinitis of scrofulous children, attended with profuse discharge and eczema of the nares. He thinks from his experience in three cases, that the same method of treatment will probably be found useful in acute rhinitis. Europhen was also of value after operative procedures within the nose. A ten per cent. ointment of europhen was, in the clinic of Dr. Siefert, extremely efficacious in the treatment of both the simple and fetid forms of atropic rhinitis. The preparation was introduced upon cotton tampons, which were allowed to remain in place for about half an hour. The dryness gradually lessened, secretion increased, crusts and offensive odor disappeared. From one of the clinics of Heidelberg, Dr. von Szoldrski reports favorable influence in three cases of laryngeal tuberculosis with abundant muco-purulent secretion. This writer also testifies to its worth after operations upon the nose and larynx. Dr. Lowenstein has obtained good results from the use of europhen in perforating ulcer of the septum of the nose and in epistaxis dependent upon erosion of the septum. Dr. A. Nolda, has successfully used europhen in three cases of suppurative otitis media, in leg ulcer, chancre and chancroid. In the last named affection, a comparative study led him to esteem europhen as being more efficacious than iodoform. On account of its lightness, a given quantity of the former will cover five times as much surface as the same amount of the latter substance. Dr. Vulpius states that in the clinic of Professor Czerny, in Heidelberg, europhen has been employed with satisfaction in the treatment of accidental and surgical wounds, osteomyelitis and tubercular ulcers. A communication has been made by Dr. Juan Santas Termandez in regard to the value of europhen in ocular affections. He has employed this remedy in conjunctivitis, keratitis, traumatism and after operations, generally in the form of a one per cent. ointment.

Dr. Eichhoff has made experiments with hypodermic injections of europhen on constitutional syphilis. He injected from one-half to one and one-half grains dissolved in olive oil once daily and states that while in some cases the results were decidedly encouraging he is not able to recommend the method for general adoption. Dr. Gaudin, of Paris, has written favorably of the effect of hypodermic injections of europhen in tertiary syphilide in which he considers it more effective than in the secondary form of the disease.

Both aristol and europhen are prepared by the same firm of manufacturing chemists and have similar therapeutic powers. Both substances are proposed as substitutes for iodoform, over which they possess the decided advantage of comparative absence of odor. It has been thought that the sphere of activity of each product may be enlarged by combinations and with this view, a mixture of equal parts is offered under the name of europhen-aristol. The mixed product is an impalpable powder, of a buff color, a rather more pleasantly aromatic odor than europhen and somewhat more resinous to the touch. It will probably be found superior in adhesiveness to europhen. The properties and uses of aristol I have already described. (*Medical Bulletin*, June, 1891.)

Specimens of europhen and europhen-aristol having been placed in my hands, I have carefully studied their effects in a number of cases to which they seemed applicable and believe that europhen, like its predecessor, aristol, is entitled to rank as an acquisition to the list of therapeutic agents. My experience relates especially to accidents or diseases involving the integument.

Primary union promptly takes place in incised wounds when, after being cleansed and approximated,

powdered europhen is kept applied to the surface. This substance, like aristol will, no doubt, prove efficient as a dressing to many forms of operative wounds. In contused and larcerated wounds, inflammatory action is abated and destruction of tissue is minimized. The surface is maintained in a dry and aseptic condition and the loss of tissue is solely dependent upon the extent of interference with the capillary circulation of the injured part. The devitalized tissue is protected from the action of pathogenetic organisms, which so often and so seriously complicates the case in these varieties of traumatisms. Chronic ulcers of the leg were favorably influenced by both the pure and mixed powder. One case in particular, I may cite by way of illustration. A large and indolent sore, of unhealthy appearance, had long been seated upon the lower third of the left leg of an old man. The veins of the limb were enlarged, tortuous, prominent and engorged. The granulations were feebly organized, the surface was covered with sanious pus, was sensitive and prone to bleed. The edges were callous and the lesion was surrounded by a zone of lividity. Many remedies had been used with little or no effect, and the patient, discouraged by ill success, had perhaps, neglected scrupulous and constant attention to cleanliness. As a preliminary measure, I directed the surface to be cleansed with a weak lukewarm solution of carbolic acid and when the inflammatory products had, as far as possible, been removed, to be strewn with europhen-aristol powder, covered with a layer of borated absorbent cotton and moderate compression exerted by means of a roller bandage carried from the foot to above the knee. Together with this local therapy, appropriate dietetic and constitutional measures were instituted and the patient was directed to rest his limbs, as much as possible, in the horizontal position. A highly gratifying effect was produced. In the course of ten days, the character of the surface completely changed. Healthy granulations made their appearance, a course of repair was inaugurated which thenceforward proceeded steadily without interruption and at the end of four weeks, the surface was soundly cicatrized. An elastic bandage was ordered for the sake of supporting the toneless and dilated veins and the patient dismissed.

A young girl, 19 years of age, presented, upon the left side of the neck the characteristic and unsightly ulcer resulting from the degeneration of a scrofulous gland with destruction of the overlying integument. The patient was of fair complexion, pale and rather delicate in appearance, but free from any sign or symptom of pulmonary disease. A cicatrix upon the right side of the neck indicated the presence of former ulceration. The surface of the sore was uneven, covered by a grayish deposit and from it issued a thin puriform discharge. The edges were undermined and of a dull red color. Constitutional treatment was ordered and the ulcer was dressed with powdered europhen held in place with a pad of borated cotton. Improvement soon began, the suppuration diminished, the grayish exudation disappeared, the granulations took on a healthy aspect and at the expiration of about three weeks, I was able to discharge the patient with a freshly formed and healthy scar occupying the site of the lesion.

A woman, aged 26 years, long the subject of lupus vulgaris, upon whose face both nodules and ulcers were present, who had been treated by many physicians and by almost every known method, was chosen as an excellent case by which to test the virtue of the new remedy. Twice or thrice daily, europhen in powder was freely dusted over the ulcerated surface which was, in addition, irrigated every day with a carbolized solution. Amendment was manifest by the end of a week and in three months' time, the patient was discharged cured, at least for the present. Whether relapse shall occur remains, of course, for the future to decide. In another case, of still greater chronicity and obstinacy, an equally favorable result was obtained though the progress of repair was more tardy.

A man, aged 68 years, of good habits, came to the Medico-Chirurgical Hospital on account of a superficial ulcer, situated upon the upper third and toward the outer border of the right thigh, about five inches below Poupart's ligament. The disease had begun as a hard papule which was the size of a buckshot when first observed. After some months the skin had cracked and given exit to a thin, blood-stained fluid. This discharge soon dried and formed a thin, brown scab. Subsequently a roundish ulcer, with hard edges and a red base had formed. The patient was undoubtedly afflicted with the superficial form of epithelioma. The ulcer, which had been cauterized and curetted to no avail, was the seat of pain. Europhen in powder was at first applied but not being followed by much improvement, the ointment form was resorted to and after several trials, a preparation containing from three to four drachms of europhen to the ounce of a fatty base, was adopted as the most suitable to the morbid condition. Under this medication, the pain subsided and healthy granulations slowly sprang up, gradually spreading until the raw surface was entirely cicatrized. The ulcer was healed at the end of about four months after beginning the course of treatment. In another case, that of a woman, fifty years of age, a small epithelial ulcer was seated upon the left ala of the nose. It had seemed in the beginning, to be nothing more dangerous than a wart, sometimes a stinging, darting pain would be felt in the growth. At length the skin broke, a little sanious discharge escaped, dried into a brown crust which the patient picked off, exposing a deep red, raw but dry surface with hardened edges. This ulcer grew gradually and slowly in extent, and when the patient applied for relief, involved nearly all the surface covering the ala and the cartilage. Aristol was first used upon this lesion but although some improvement was observed, the ulcer still remained open and irritable. Europhen was next employed with about the same result. The sore manifested a slight disposition to heal but no decided gain could be detected. For some weeks the two remedies were then used alternately but still the condition remained comparatively unchanged. Finally the mixture of equal parts of europhen and aristol was used, when the ulcer began to gradually but steadily heal from the bottom and in about ten weeks a well marked cicatrix had formed.

The upper lip of a young man was invaded by sycosis, was red, swollen, surmounted by papules, pustules, scales and crusts. The lesions were numerous and had coalesced. Some of the pustules had freshly ruptured when he first came under my care, and the hair, which he had as closely trimmed as possible, was matted together in places. The patient suffered considerably from the sensations of heat,

smarting and tension in the affected part. After the crusts had been removed by the oil of ergot, I directed the part to be thoroughly cleansed by a weak lotion containing hamamelis, after which a 10 per cent. ointment of europhen was placed upon the surface. The hair being closely cut, no difficulty was experienced in making the application. The subjective symptoms were rapidly alleviated and the objective manifestations soon began to improve. The ointment was placed upon the surface several times during the day, and its use was eventually followed by a complete cure.

After the necrosed tissue has been expelled, europhen powder, dusted upon the surface of a carbuncle, accelerates the work of repair. I made use, in carbuncle, of the mixed powder, europhen-aristol, with the same good result.

A young man, aged 18 years, consulted me on account of papular acne upon the face and back, from which he experienced great annoyance. The lesions were abundant upon the cheeks and chin, were interspersed with comedones, and the patient, not otherwise ill-looking, was indeed sadly disfigured. Many external remedies had been used upon his face with little or no benefit; the red and indurated papules remained. The employment of a suitable diet, with some attention to the digestive organs, combined with europhen ointment, soon effected a change. The strength of the ointment varied from 1 to 2 drachms of europhen to the ounce of excipient. Under this treatment the lesions soon began to decrease in size and number, and at length disappeared under the use of the external treatment.

A middle-aged woman was sent to me, whose face exhibited a typical example of the second stage of rosacea. Upon the forehead, nose, cheeks and chin, the injected capillaries could be seen as bright red streaks, running parallel to each other in some situations, as upon the ala of the nose, while in other regions, as upon the cheeks and chin, they were arranged in tortuous curves. Some of the vesicles were of considerable size. The skin was rough and thickened, and here and there upon the face were scattered papules and pustules. Locally, I directed the following lotion to be used:

℞. Europhen, ʒij.
Glycerini, ʒij.
Spir. odorati q. s. ad., ʒj.
M. Sig. For external use.

By the persistent employment of the measures recommended, the papules gradually retroceded, the pustules disappeared and the capillary injection in great measure subsided. Altogether the improvement was gratifying alike to physician and patient.

In several cases of facial erysipelas notable amelioration attended the use of an ointment containing from 10 to 20 grs. of europhen to the ounce. The smarting and burning was soon relieved, the swelling diminished and the eruption ceased to spread. The absence of offensive odor is an undoubted advantage which this substance possesses over ichthyol, which has of late been highly recommended and widely used as a topical agent in the treatment of erysipelas. In dermatitis caused by contact with rhus toxicodendron, the application of an ointment beginning with 10 grs. and gradually increased to 1 drachm of europhen is well adapted to serve as a dusting powder upon the surface, after the vesicles have been ruptured. I made use of this remedy, likewise, in several cases of herpes zoster which came under my care. The pain, or at least, the distressing burning and smarting sensations produced by the lesions of zona, are generally mitigated by the use of a dry powder. It is difficult, however, to keep the lesions covered, and for this reason, the slight stickiness of the europhen powder, enabling it to cling closely to the surface upon which it is placed, renders it an excellent medicament in herpes zoster when situated, as it so often is, upon the side of the chest. In the form of a powder, I have also found it of advantage in seborrhœa oleosa. In this condition, I have directed my patients to wash the affected region, before going to bed, with a lukewarm solution of chamomile or boro-glyceride soap, and after thoroughly drying the skin, to cover the surface thoroughly with powdered europhen. The result has been quite satisfactory. The powder remains in place, absorbs the greasy discharge and exerts a tonic and corrective effect upon the affected glands. The simultaneous internal exhibition of the tincture of hoang-nan in the dose of 15 to 30 drops, three times a day, will coöperate in bringing about a cure.

An ointment of europhen appeared to be of assistance in a case of alopecia circumscripta. The patient was a middle-aged merchant of good physique and a vigorous growth of hair, but who had been subject for more than a year to the double strain of keen anxiety and overwork. The hair suddenly fell out in spots, leaving several denuded and unsightly patches upon the scalp. In this instance, the origin of the affection was evidently the perverted action of the nervous system. A certain number of cases are seen which lend probability to the view that alopecia circumscripta sometimes depends upon the growth of a parasite. In the case of which I write, the europhen salve was conjoined with the local use of galvanism, and I insisted strongly that as far as possible, the tone of mind and habit of thought should be changed.

As a rule, no instant effect will follow the application of europhen powder upon an unbroken surface. That in certain conditions in which the vitality of tissue is lowered, it may give rise to an irritative eczema, is shown by one of Dr. Eichhoff's cases. It has, however, sometimes appeared to me to exert a stimulant effect upon the integument and its glands. I have seen several cases of hyperidrosis in which the excessive secretion was manifestly restrained by frequently dusting the surface with europhen powder. To the unfortunate sufferers from bromidrosis of the feet, the europhen-aristol powder has given decided relief, arresting the discharge and removing its offensive odor. At night the feet should be bathed in a slightly stimulating bath, containing mustard-flour, salt or alum, and after being dried by brisk rubbing with a towel, the powder is sprinkled liberally upon the surface and between the toes. By day the powder is strewn in the stockings.

I have derived benefit from the use of europhen or the compound powder in a number of cases of eczema of different forms and stages. In acute vesicular eczema, europhen powder combined with subnitrate of bismuth has reduced the local inflammation, absorbed the serous exudation, allayed the heat and itching. A case of chronic eczema affecting the hands and feet was cured by the persistent use of an ointment composed of 1 drachm increased to 2 drachms of europhen to the ounce of lanolin. Ec-

zema of the hands and feet is an obstinate affection. The fissures which form are kept open by manual occupation or in the act of walking, the skin becomes thickened and the fissures are the seat of pain. A case illustrative of this condition was markedly benefited by the application of europhen-aristol. The patient was a man, aged about 40 years, who had long been afflicted upon the soles of both feet. The surface was painful, long and deep fissures had formed, from which issued a blood-stained serum, vesicles and fissures also existed between the toes. The patient was teased with constant itching, and locomotion was impossible. The treatment adopted was the dusting of europhen-aristol powder between the inter-digital spaces, and the application to the plantar surface of an unguent containing from 1 to 2 drachms of the same powder to the ounce of rose water ointment. The pain and itching soon began to decrease and the fissures to heal. In the course of a week, the patient could endure shoes, and a few days later he was able to go to his place of business. At the end of eight weeks he returned, free from the least trace of eczema. A distant rheumatic diathesis was present in this case, and an internal treatment was addressed to this underlying condition.

A woman, aged 37 years, sought my advice on account of a psoriasis from which she had suffered since girlhood. Patches were to be seen upon various parts of the body. At times the condition would improve, either as a result of medication or spontaneously, the disease would remain quiescent, but after an interval of uncertain periods, an exacerbation would occur. It was during one of these relapses that I first saw the patient. Small patches were interspersed with large oval areas, upon which the characteristic grayish scales were seated. Here and there patches had coalesced, giving rise to fantastically shaped lesions. In some places the scales had become detached, and a thickened, reddened and slightly elevated surface was exposed. The case, in fact, presented a typical picture of psoriasis. A uric acid diathesis was evidently present in this instance, and probably accounts for the inveteracy of the malady. To the constitutional condition an appropriate therapy, which will not here be discussed, was given, while the local medication consisted in the application of a europhen-aristol ointment, the scales having been previously, as far as possible, removed by the usual methods. The ointment was at first made in the proportion of 1 drachm to the ounce of fat, but the strength was gradually raised to 3 drachms. The local measures obviously exerted a favorable influence upon the lesions. The amount of infiltration was markedly lessened, and she was dismissed with directions to continue the use of the ointment at any time that redness appeared. Aristol I had found beneficial in psoriasis, but the europhen-aristol seemed to produce a more decided as well as a more rapid effect.

In syphilis, my experience with europhen and aristol has been principally confined to the open lesions of the late secondary period. Upon ulcers and upon syphilitic rupia, after the latter had been cleared of its accumulated crusts, both the europhen powder alone and the mixture with aristol stimulated the work of repair. I have every reason to regard them as valuable adjuncts to the constitutional treatment. Upon ulcers, often of considerable size, found upon the limbs in late syphilis, especially in those patients who lead dissipated lives, the mixed powder was of advantage. Chancres, chancroids and open buboes are also benefited by the same application.

In the foregoing summary of cases in which europhen has been employed with advantage, the aim has been to record the facts which I have personally observed. The cases briefly glanced at have been selected from a number as being suitable tests of the power of europhen. The solubility of europhen in olive oil renders it well adapted for injection into pus cavities, sinuses and fistulæ. The freedom from offensive odor is a point in its favor. An excellent property of europhen is that it will not harden into compact cakes upon the surface to which it is applied. As an antiseptic dressing, europhen is of value, and the absence of toxicity is another point in its favor. The harmlessness and not unpleasant smell commend this substance in the surgical affections of children and in gynecological practice. That the mixture of europhen and aristol adds something to the efficiency of each, is shown by a case of epithelioma, in which first one and then the other substance were used alone without effecting much benefit, while the mixed products speedily instituted a course of improvement. In some patients the powder acts more beneficially, while in others an ointment is productive of more favorable results. It may be necessary to increase or decrease the strength of the ointment according to the circumstances of the case. I have generally found that a proportion of 1 drachm of europhen to the ounce of excipient makes an efficacious ointment.

A FEW NOTES ON THE MECHANICAL THERAPEUTICS OF OSSEOUS AND MEDULLARY LESIONS OF THE SPINE.

Read by title in the Section of Practice of Medicine at the Forty-third annual meeting of the American Medical Association, held at Detroit, Mich., June, 1892.

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Perhaps in no department of medical science during the latter half of the present century has there been any greater, or as great advance, as in that which embraces within its scope the relief or permanent cure of physical infirmities by mechanical measures. The enormous progress in modernly applied physics, has completely revolutionized pathology, and rendered in many instances, precise accuracy in the diagnosis of disease possible. In nothing, however, have the practical, beneficent influences of these advances been so conspicuous or happily appreciated as in the treatment of disease.

Very naturally, we Americans feel a just pride in the share which members of our profession have contributed; for, although this must go into history as the greatest inventive century that the world has ever witnessed, it must likewise be conceded by the impartial historian, that Americans have, in this direction, occupied the foremost rank, and given to posterity such discoveries and inventions as will endure as long as time itself.

Little time was lost in utilizing and appropriating those principles of mechanics, in the surgical art, which were first mainly limited to the arts and industries. In fact, to-day one can scarcely conceive how it is possible, for the art of mechanical therapeutics to be much further extended. Thus, we thought,

twenty years ago, too; and yet, since then we have been time and again, amazed and confounded with fresh proofs, that human ingenuity is but yet in its infancy; never have those of us,of a mechanical bent, ever had a wider field or a more promising future for an ample reward, than to-day.

This has very recently been incontestibly demonstrated, in the immense improvement in the management of spinal lesions, which totally invalided, deformed, or crippled many in former times, but which now, if treated early and properly, by modern orthopædic appliances may, in the majority of cases, recover, with full restoration of function, and little or no deformity.

In order, however, to effectually utilize mechanical appliances in spinal affections, we must have a clear and definite knowledge of the condition which we propose to treat, and the manner in which our therapy is to be utilized, with a view of accomplishing the greatest good and inflicting a minimum of injury.

The pathological conditions of the spine, in which orthopædic instrumentation may serve a useful purpose, may be divided into classes.

The first, is that in which local disease arises from constitutional causes.

The second, is when such lesion follows a traumatism.

The third, when the spinal infirmity occurs from a combination of both the above, as when one predisposed to rachidian disease, suffers a slight or severe injury anywhere over the back.

They may be further sub-divided into lesions (*a*) in which the elements of the cord above are involved, or those mainly limited to the bony column, the cord suffering only consecutively, (*b*) acute and chronic maladies. This division might be continued *ad infinitum*, for the subject is a very large one; but for the purposes necessary to a simple elucidation of our subject at the present, these headings will answer.

In acute spinal meningitis or spinal myelitis, evincing a short course, the back is rigidly fixed by muscular spasm and moves only when convulsive discharges are directed outward.

With this class, exclusive of securing a firm, yet comfortable, resting surface, little good will be derived, from any adjustment appliance.

With those chronic spinal affections of either the cord or bony canal, mechanical appliances, properly utilized in point of efficacy, can be superceded by nothing. This is especially true of the bony skeleton.

But with many, Pott's disease is so insiduous in its development, that the first definite indication of its existence we have is a deformity. Now, on inspection we will notice that the falling in, aching or twisting of the vertebral column, can in any case be readily explained by physical laws. We will observe an invariable shifting of the center of gravity with a compensatory distortion and hypertrophy, of those vertebræ above and below the diseased centre; and of the ribs and sternum as well.

The objects in view in the treatment of what has been designated Pott's disease, *i. e.*, disease of the bones, cartilages and ligaments of the spine, are, 1. To arrest the disease if it has not already made much headway; and 2, to limit deformity. Many methods have been employed to attain these ends. It is unnecessary to say, that in any case hygienic, constitutional and medicinal treatment should go hand in hand with orthopædic appliances. When the early onset of spinal disease is recognizable, it is generally conceded that bodily rest is essential. This holds good, also, in the more advanced cases, in which deformity is already established, and pathological changes are advancing, either slowly or rapidly; and in which, perchance, paresis or paralysis of the upper or lower extremities, or both, announce pressure on the cord, within the canal. In this class then, the question is how shall the necessary rest be best atttained, without, while instituting it, inflicting greater damage to the economy, than if nothing whatever had been undertaken? In answering this question, it is needless to say, that we must under all circumstances be influenced by the surroundings of the patient, his age, the condition of his general health, the precise nature, location, and extent of the malady, which we commence to treat. Before we undertake to describe the various ways, through which limitation of movement can be best effected, and that *rest* secured, which authors attach so much importance to, it is well, that we have a clear interpretation on, or a definition of, what is meant by the term, *rest*.

If we were to understand by it, that the word was synonymous with immobilization, it would be quite a simple matter to immobilize the spine. It is clear, however, to anyone, on very slight reflection, that this sort of fixation, must necessarily entail the employment of braces, stays, and binders, thereby securing constant, uninterrupted pressure, in consequence of which, we must have, through its effect on the soft parts, on the vessels and nerve-trunks, and through cessation of muscular movement, great physical discomfort, a serious interference with nutritive and regenerative processes, and consequent arrest of bodily growth. This indeed, is just what does occur in every case of spinal disease in which its mechanical treatment is abused or misdirected. Absolute immobilization then, means every time, if it be continued long enough (and spinal disease is always a chronic, tedious malady), degeneration of tissue and destruction of function.

Rest, then, must not be comfounded with immobilization. *Rest* in a physiological and surgical sense, means recuperation and restoration, and nothing more. The placing of the parts, the spinal column of bones, or the fractured bone of a limb, or other part of the body, in such a position, or under such conditions, as will aid the regenerative powers, in most promptly regaining their full, functional strength, is *rest*, in its broad and general sense. Limited fixation and interrupted motion are not incompatible with *physiological* rest. On the contrary, as was pointed out by Prof. Chiene in his justly celebrated address, before the British Medical Association, in 1891, that the broken rib, which never rests in the living body, unites more quickly than any other bone; and, in any fracture he said, he believed properly applied massage, fixation and interrupted pressure rather forced early union than otherwise. Perhaps it would be more comprehensive, if the word *support* were adopted rather than rest; for the latter implies that the spine has been over-strained, overworked, or over-exercised, when nothing is further from the fact. But that it has been damaged by accident or disease, has been weakened, in other words, it goes without saying; then it needs, not rest, but *support*. How this support can be most economically and effectively supplied in each given case, is what particularly concerns us on the present occasion.

In every instance, in the acute stages of spinal disease, or even that phase of it pursuing a chronic course, unless the patients were within a convenient distance of some institution, for free treatment of spinal diseases, in which they will come under the direct observation of experienced surgeons, or they have no means to secure skilled services at home, it will be well to let them spend a considerable share of their time in bed, lying on the back, or either side, in such a position, as will secure as much comfort as possible. The main objection to this line of treatment, is the necessary confinement within doors, want of bodily exercise and the tendency of the patient to so bow the spine, as to greatly aggravate the angular curvature.

Manifold and varied have been the apparatuses devised which would obviate the necessity of this bodily inactivity, and yet permit the patient free use of the limbs with out-door exercise, while supplying ample support to the swaying spinal column. Thoracic-supporters, wire corsets, head rests, steel hooped braces and other appliances almost without number, have from time to time, been selected. But, there were many objections against the use of a greater part of them. They were expensive; they were liable to get out of order; and with the growing child, needed occasional renewal. Independent of these undesirable features, connected with them, if imperfectly constructed, or not properly applied, they often so chafed and irritated the patient, that they had to be thrown aside altogether. It is quite a simple matter, when disease is limited to the cervical vertebra, to lift the weight of the head, off its weakened support without resorting to any one complicated apparatus; but when the vertebral bodies commence to fall inward in the dorsal or lumbar regions, to so apply an adjustment, as will afford ample steadiness and quiet without interfering with respiration, or causing such pressure on the great spinal muscles as will induce a wasting and weakening of them, when the osseous lesion is wholly recovered from, is a difficult problem to solve. Still very much has, of late years, been accomplished in the way of surmounting this difficulty. It is important in the mechanical treatment of spinal disease to bear in mind the fact that when once well established, it is an affliction which runs through years, that it is, however, limited in its course; and finally that it terminates in an anchylosis, or osseous fusion of the affected vertebræ, thereby, forever destroying the elasticity, pliancy and strength of the trunk. Accordingly, in every instance, we must be prepared to deal with a case requiring a long period for treatment; and that our appliances may not, by too long continuance, or want of modification in their construction, do harm to one patient, they must be changed or wholly discontinued when a cure has been finally attained, much depending always, on the thoroughness of the cure, the degree of deformity resulting. In cases of violent traumatisms of the spine, implicating the bone and spinal marrow as a primary measure, I have never had occasion to employ any sort of apparatus or adjustment, except in two cases of fracture in the cervical region. In neither of them was it satisfactory. With the adult who has sustained a very violent concussion of the spine, with or without fracture, it is seldom that the internal organs escape Anyway, there is always more or less extensive bruising of the body. With this class, it is a simple matter to secure the necessary rest to the crushed parts, by placing the body in the prone position, and adding supports in such numbers and situations as may be indicated. The majority of these go on to mortal termination, within the first week. Clearly, it would be immaterial to fix the spine in any sort of an adjustment, when we have indisputable evidence of serious kidney disorganization, or in the presence of such symptoms as would render the immediate prognosis doubtful. Should those cases of spinal traumation pass through the first week safely, and indications of the recovery of the bodily strength are present, then we may consider the propriety of fixing the body in a mechanical adjustment, or introducing such measures as give the greatest comfort and best prospects of recovery.

Our first concern, should be the bed of our patient. It should be narrow, but long, so that in handling him, he will be in a position most convenient of access. The bed should be long, to allow for extension, and a free space at the end of the head and feet. In every case there should be a rope to extend from a staple in the ceiling, with a bar attachment, for the patient to exercise his arms, and as strength returns, to shift his position. The mattress should be of a firm consistence of straw, husk or hair. The bed should have no springs.

When our patient is in bed, little or no good can come from any direct sort of adjustment to the back. It is already amply supported by a firm, comfortable surface underneath and on each side, and a cool comfortable packing can be easily extemporized in every case, in order to prevent a lateral sliding or undue inclination in any one direction. The cervical end of the spine, however, may require a special adjustment if the effects of the traumatism are located here.

In my own cases of injury in this region which went on to recovery, broad, lateral traction, extending down over the ears, passing under the chin, served a most satisfactory purpose.

In cases of fracture of the dorsal vertebra, without considerable displacement, some resort to enveloping the lower thorax in a plastic material, while others prefer extension of the spine, though, until quite recent times, no mechanical adjustment of any description was employed. It has long been a disputed question whether or not the spinal column is capable of mechanical extension by weights acting on the lower extremities, while the body lies in the prone attitude. Assuming that effective extension on the back is possible, yet the confined posture of the body, with the tendency to bedsores, and difficulties in the way of supplying the demands of nature, render it an undesirable means of relief; particularly when others more efficacious are readily accessible. In my own hospital service, with a considerable experience in the management of spinal traumatism, when the lesion has been limited to the osseous elements, extension or counter-extension has rarely been applicable.

In many we will observe, in pathological conditions of the spine of a constitutional or traumatic origin, an association of morbid processes which involve, simultaneously, the medullary and osseous elements; varying phases of paralysis being observed, while full mobility of the spine may be temporarily or permanently in abeyance. Lastly, there is another, the rarest group, in which there is no evidence of bone

disease, the pathological lesions affecting the cellular elements, or membranes of the cord, in either one or both lateral divisions of the column, and occupying varying areas; hence in one we will meet with monoplegia, another paraplegia, and in another motion is absent, but sensation is present. In fact, in those myopathies of an eccentric or spinal dependence, they assume every sort of simple and complex phase, from the bedridden state, to a general or local ataxic condition of muscular movement.

MECHANICAL APPLIANCES.

The mechanical apparatus which may be utilized with the greatest advantage, in the three divisions of spinal lesions here defined, may be divided into two classes, viz.: those which are fixed and those which are movable, or portable. The one entails a more or less fixed position of the spine, while the other permits of free movement and is intermittent in its action. It would be useless to go back into the early history of the healing art, to trace the origin of mechanical supports in spinal maladies: suffice it to say, that they have been employed, in a crude form, since very remotest ages, for at present we are chiefly concerned with the advances of our own times.

The fixed apparatus is a brace, calculated to lift and carry the superincumbent weight from the seat of disease. They are manufactured from every conceivable pattern and material. It was not until Prof. Lewis A. Sayre utilized the plastic and yet powerful properties of plaster of Paris that an ideal material was discovered, which is adaptable to a very wide range of spinal maladies. The cheapness of this material leaves it within the reach of the surgeon, and there is no deformity which it cannot be adapted to. But, there are certain, definite principles which must be observed in its application and use, or it will do more evil than good. It must be remembered that the plaster jacket, so-called, is applied principally for the double purpose of maintaining counter-extension while it supports the yielding spine. With the growing child it must be frequently changed, in order not to interfere with growth or cause muscular atrophy.

In the acute stage of Pott's disease, Sayre's plaster jacket stands almost without a rival. In the paretic or paralytic, in which there is a tendency to a sort of "tumbling-in" of the lower dorsal, or upper lumbar vertebræ, in the adult, it is a veritable godsend to those unable to provide expensive apparatuses, or those who cannot wear them.

The cases in which the Sayre-jacket serves the most useful purpose, are those, in whom the disease is chiefly osseous, for I am not aware, that it has been recommended extensively in conditions of the spine of a purely neurotic type.

It has been alleged by not a few, that the great utility of Sayre's jacket is derived rather from the body suspension and spinal extension, in its adjustment, than from the jacket itself. And acting on this assumption, neurologists have applied suspension in tabes-dorsalis and other affections of the medulla-spinalis, with varying results, since Sayre's invention. The principal objection to the plaster jacket is, that its action is constant; there is no "let up," so to speak, but the pressure which it induces is continuous, so that there is liability to myopathic, degenerative changes, with erosions and ulcerations at osseous points not imbedded in muscular or adipose tissue. This has in part been lately obviated by splitting and lacing the jacket anteriorly, so that pressure can be more equably adjusted.

Moreover, there are cases in which the gypsum dressings are not applicable, or cannot be comfortably worn, besides many in which it fulfils but one indication, in which it is obvious that something else is desirable, something which permits of interrupted, full extension of the spine in the upright position, without continued lateral pressure, so as to allow of massage of the dorsal muscles and free, unrestrained action of the hands and arms, when these members are not palsied.

I can in no manner describe the class which I refer to, better than by citing a case:

The patient was a young woman, who was sent into my service at the Harlem Hospital of New York, early in the summer of 1891. She gave a history of having injured the spine by a fall some months before, from which time, she was completely paraplegic, and paralyzed from the mid-dorsal region of the body downwards, although control of the anal and vesical sphincters was maintained. The consideration of this case from a forensic point of view I have fully dwelt on in a brochure presented elsewhere.[1]

She was considerably emaciated, with a poor appetite, and was in a melancholy state of mind. The plaster jacket had been applied before she came in, but effected no benefit, besides caused so much discomfort, that it had to be laid aside. It was apparent that this case, which presented well marked indications of disease of the vertebræ, with pressure on the cord, required some sort of a mechanical appliance to either supplement the jacket or substitute it; which would permit of vertical extension of the spine, ample support of the body, and free muscular action in the parts not involved. At about the time she was admitted, while on my way to Washington to attend the meeting of the American Medical Association, I met on the night train Dr. Meigs Case, of Otsego Co., N. Y. He described his portable carriage, known as "the Meigs Case Spinal Apparatus," for spinal infirmities, and advised me to try it on this patient. Immediately on my return, some kind lady friends, on my recommendation, purchased of the Pomeroy Truss Co. one of these carriages. At first she was so utterly helpless and limp, that in adjusting her in the spinal apparatus, it was like swinging a corpse; but after a few persevering trials she commenced to gain confidence, and could assist us with her arms. After one month, full sensation returned in the extremities, this was followed by occasional involuntary spasms of the lower spinal and femoral muscles. After three months, she could stand and steady her body by firmly holding the side-bars with her hands. After six months, she was able to lift the feet and take five steps without any assistance. From this time onward her progress was rapid. At first walking with crutches, then with a cane, and finally, when she left the hospital, nine months after admission, going about where she pleased, without any support of any kind, except the corset.

Simultaneously with the commencement of the use of Dr. Case's spinal apparatus, her general strength commenced to improve, the appetite was better and constipation disappeared. Shortly after improvement was well marked, being desirous of sitting up, another Sayre jacket was adjusted, which she wore with great comfort until she left us.

From my experience with this case, and a study of the mechanical principles on which the Meigs Case spinal apparatus operates, I feel amply justified in recommending it in a very large class of spinal diseases, and in maladies of the spinal cord which present symptoms of paralysis or incoördination, in an early stage of life. It fulfils, in a larger measure than any other apparatus, the indications for mechanical therapeutics of the spine, in providing simultaneously bodily support, vertical extension and free muscular movement. I am confident that a better acquaintance with the many purposes which this valuable contrivance serves, and a familiarity with its use, will commend it to every practitioner

[1] Annual Meeting of Association of Railway Surgeons at Old Point Comfort, Va., May 25, 1892. "Diagnosis and Prognosis in Spinal Lesions."

who is desirous of securing for his patients such facilities as will favor the rapid and complete restoration of spinal function.

When all symptoms of paralysis have disappeared, and only weakness remains, then, with those unable to provide expensive, complicated braces, the employment of the Sayre jacket is indicated. It may be made light or heavy as required, and be renewed or dispensed with, as conditions indicate. In all cases of spinal infirmities requiring any sort of extension or support, the patient's bodily comfort is enhanced, besides, the state of the muscles and internal organs are all benefited by massage, judiciously applied.

EPILEPSY.

Read by title in the Section of Practice of Medicine, at the Forty-third Annual meeting of the American Medical Association, held at Detroit, June, 1892.

BY M. M. LEAHY, M.D.,

OF CHICAGO, ILL.

Admitting that from the time of Aristotle, when a knowledge of the structure and functions of the human body first began to be cultivated systematically, down to the present day the demonstrator of morbid anatomy has not lived who can point with unerring finger to the cause of epilepsy; admitting, too, that of more than eight millions of the world's people, whom statistics prove to be epileptics, perhaps less than one third are curable; yet we claim that in our thirty years' experience, both in Europe and in the United States, we have not been without some measure of success in the treatment of epileptics who continue to report themselves free from fits.

In response to a request for a chapter from our own experience in the treatment of epilepsy, leaving its etiology, pathology and history to the many able medical writers of the day, we purpose giving a brief history of a few selected typical cases and if this should prove helpful to one student or inexperienced young physician the mission of this paper will have been accomplished.

We have been asked our method of diagnosis and in reply would say, we use our educated senses.

It was our fortune throughout our entire European course of medical training to be a special student under a preceptor who, while he possessed one of the finest medical libraries in the kingdom, regarded all book knowledge as secondary to education of eye, ear and fingers. The student was put in a hospital with the understanding that no physician ever knew a thing that he could not see, hear or feel for himself. His text-books were the patient and the cadaver; there he staid and there he wrought under the most rigid task masters until he could tell almost instinctively, not only the ailment, but the treatment that should be used in battling with the disease. So while we have no wish to depreciate the many excellent instruments used as aids in detecting morbid conditions of the body, our own educated eye, ear and finger tips serve us with a fidelity that few manufactured instruments can equal or surpass.

It is said, if you place before a certain cultured lady, blind from her birth, a gorgeously embroidered cloth, that by passing lightly over it with the delicate tips of her educated fingers she can describe, not only the texture of the materials but every shade and tint of color used.

Now, one need not be born blind to detect the soft, mellow skin of phthisis or the dry, scaly skin of syphilis. Neither need he be bereft of other senses to hear an abnormal vesicular murmur or to read the history which every pain records upon the human countenance.

It is, then, with every sense on the alert, that we search for the break or obstruction in the physical economy of the epileptic; and when found, our entire energy is directed to the repair of the break or the removal of the obstruction.

Since no two constitutions require precisely the same medical and hygienic treatment we pay the greatest respect to the several idiosyncrasies of our patients. In fact the therapeutist has not lived who has dared pronounce upon the best "fit remedy" that ever issued from the door of a chemist's laboratory as even approaching infallibility, and the man who advertises a specific dose of a special nostrum as a cure for epileptic fits regardless of temperament or condition of the patient must be a fraud or a fool.

We have been asked our judgment with reference to the probability of cure in a case of genuine epilepsy. In our own practice we have found that if the predisposing cause be compression of the brain or lesion of the spinal cord, the chances are, at least one hundred to one, that the former will be followed by idiocy or softening of the brain and the latter by paralysis, both terminating fatally.

If the patient be the offspring of scrofulous, intemperate, phthisical, syphilitic or epileptic parents we may give relief for months and even years at a time, but the chances are against a permanent cure.

If, however, the predisposing cause be a simple disturbance of some part of the alimentary canal, the liver or the kidneys, an irritation of the pneumogastric nerve, the chances are decidedly in favor of a permanent cure.

The history of the following selected cases may serve to explain our general plan of treatment:

About five years ago while conversing with a friend in one of the public buildings of Boston, Massachusetts, we observed an employee, a finely built, robust, young man approaching. Just before he reached us he uttered a harsh scream and fell, bruising his face upon the stone where we stood. Instantly placing him upon his back, with a coat for a pillow, and a block of cork between his teeth, and loosening his neck-wear we watched the progress of the fit. With eyes fixed, pupils dilated, head drawn down toward the left shoulder, face and eyes directed toward the right, breathing and sensibility suspended, left arm and leg extended and twisted, left foot arched, fingers and toes flexed, he was as stiff as a board for nearly a minute. Then began exaggerated muscular relaxations and contractions of the entire body. The breathing now resumed was loud and jerky, the color changed from deathly pale to dark purple while the veins of the neck became much distended. Of a sudden every muscle was forcibly stretched to its full length and instantly relaxed and the patient gave a long, loud sigh, thus ending a fit of not more than three minutes duration. This was followed by a lethargic sleep and a dull, confused awakening, lasting but a few moments, during and after which we made a careful diagnosis of his general physical condition. We discovered ecchymoses on the face and neck, a stomach distended with gas and undigested food, a gorged liver, the lower bowel distended with gas and feces, a clear case of *le grand mal*, induced by irritation of the pneunogastric nerve. As he had the strength to bear rather heroic treatment, we gave both emetic and cathartic to clear out the alimentary canal. We stimulated the liver, kidneys and lymphatics, opening up nature's channels, giving her a chance to rid herself of all morbid matter. We then gave bromides in an infusion of belladonna leaves, commencing with a small dose and increasing the quantity until we reached the maximum dose his constitution would bear. We gave a hydragogue to prevent venous congestion, using

iodide of potassium or Fowler's solution upon any appearance of bromidism. When last heard from, a few months ago, there had been no return of the fits.

A young lady of Augusta, Maine, may serve as another typical case. The approach of her attack was indicated by a fancy that she heard the most enchanting music, and in her effort to catch the tune which seemed very familiar she lost consciousness in an epileptic fit. Being a sufferer from anæmia our aim was to build up the system, mentally and physically. We prescribed whites of fresh raw eggs, beaten in plenty of fresh milk to make blood, baths and massage to stimulate the capillaries, rubbing the entire body with good olive oil once or twice a week, gentle out-of-door exercise and entertainment adapted to her taste and capacity. We then gave bromide of lithium and tonics with gratifying success.

We had, not long ago, a patient whose severe epileptic attacks were followed by mental derangement. At times he would hunt in the bed, under the carpet, in the garret and in the cellar for something he fancied he had lost. At other times he would break and destroy everything that came within his reach, even attempting to kill those he met. In such cases we have observed that bromides are decidedly harmful, tending to increase the irritation. In this instance we found the fluid extract of water hemlock alternate with borax, ergot and phosphates, very efficacious in the way of soothing the patient and checking the convulsions. In the course of a few months he died of softening of the brain.

While in charge of a dispensary in Kinmare, county of Kerry, Ireland, a patient, whose case resisted all remedies, died in *status epilepticus*. The autopsy pointed directly to *phthisis renalis* as the predisposing cause.

At the same time we had under our care a young girl afflicted with violent epileptic seizures who was a sufferer from retention of urine. An examination revealed tube-casts and albumen. Our treatment was directed exclusively to the local troubles and when their cure was effected the fits departed and we have never heard of their return.

We have at present under our care a girl aged 10, whose father, an epileptic, died at forty of softening of the brain. Naturally of tractable temper, she took spells, when for days she was irritable, morose and stubborn, culminating in an attack in which the face paled, the pupils dilated, the eyes became fixed and the muscles rigid, lasting but a few seconds. She did not fall and lost consciousness for a few seconds only, but was stupid and forgetful for several days before returning to her normal condition. As is common among epileptics she is a gourmand. We purged her thoroughly, afterwards administering fluid extract of belladonna, 10 drops daily. She has had no return of the fits for five months; but, being inherited, her case must needs be closely watched, especially as she is likely at any time to bring on intestinal irritation by over-eating.

A Chicago boy, aged 9, had violent seizures of *le grand mal* for which we treated him with bromides in an infusion of belladonna leaves without a return of the fits for one year, when not we, but his parents pronounced him cured. All went well until he had an attack of pneumonia after which he become a victim of *le petit mal*. Many times a day he caught hold of his mother with both hands and with violent grimaces uttered a hoarse cry as if in great pain. The attacks lasted but a few seconds after which he seemed dazed and entirely unconscious of what had happened. He had constant and extreme nausea. We gave as strong cathartic and emetic doses as his debilitated constitution would bear, with the result of bringing away from both stomach and bowels an incredible amount of matter having the appearance of strips of sheep skin, with a stench that was almost unendurable. To quiet and soothe we gave sulphate of atropine 1-120 gr. with sulphate of morphia 1-10 gr. and in a few days resumed the bromide and belladonna treatment. There has been no return of the fits since resuming the treatment.

There are a number of other cases illustrative of stages intermediate between *le petit mal* and *le grand mal* in which we are greatly interested; but we refrain from a description feeling that the promised short chapter has already grown sufficiently long.

In conclusion we will say that the greatest obstacle in the way of permanent relief on the part of those who are curable is the unwillingness of the patient and his friends to continue the treatment, medical and hygienic, sufficiently long.

After the fits are stopped and the patient looks and feels first rate, both he and his friends seem to regard any effort to induce him to continue treatment as a collusion of doctor and druggist to defraud him of his money.

Before commencing treatment we aim to secure a promise that the patient will continue one, two, or three years as his case may require. Oh, yes, he is ready to promise a five years' trial if we ask it; but four out of five fail to keep a one year promise. The fits return, of course, and the doctor is expected to shoulder the blame.

Is it Utopian to hope that we as honest, earnest physicians whose object is the greatest good to the greatest number of suffering humanity, may, at no distant day succeed in convincing the State at large, of the necessity for special hospitals where all epileptics may be carefully and scientifically treated and where the curable may be kept until they are cured?

OBSTRUCTION OF THE CYSTIC DUCT, WITH A CASE.

Read in the Section of Surgery and Anatomy, at the Forty-third Annual Meeting of the American Medical Association, held at Detroit, Mich., June 7, 1892.

BY W. H. MYERS,
OF FT. WAYNE, IND.

I will invite your attention for a few moments to obstruction of the cystic duct, a region only recently invaded by the surgeon ; a subject not alluded to in Mutter's Syllabus of 1883, nor found in Cheyne's of 1892.

That the treatment of hepatic disease remained in the field of medicine until within a recent period is proven by the fact that the surgical treatment of the liver by cholecystotomy was first performed by Dr. Bobbs, of Indianapolis in 1867.

In obstruction of the cystic duct there is occlusion, or stenosis. In the first the closure is complete: in the latter less complete. These conditions are dependent on foreign bodies within the duct, or upon some disease or thickening of the walls, or the presence of pressure from a tumor without. The most common cause is an impacted gall-stone in the cystic duct. If the cystic duct alone is obstructed, the office of the gall-bladder is destroyed; this leads to various changes. The bile in the gall bladder is absorbed and its place is supplied by a glairy fluid of the consistency of mucus or synovia, often so abundant as to fill the gall-bladder, and sometimes greatly distend it; it becomes a thin walled cyst holding several pints. It is now completely cut off and no longer available as a receptacle for bile; its nutrition impaired, changes in structure follow, with the phenomena inflammation and ulceration. These changes are local, for a stone lodged in the cystic duct can by no possibility produce jaundice; its presence will only prevent the bile from passing in or out of the gall bladder.

How are we to know whether or not the cause of obstruction is an impacted gall-stone? The diagnosis is positive when the patient passes a calculus; before this occurs our data are probabilities. If the following symptoms are present in a case—violent pains in the right hypochondrium, shooting through the whole abdomen up to the chest and right shoulder, nausea and vomiting seldom absent, these symtoms occurring at longer or shorter intervals, with an

entire absence of jaundice—we may safely predict the presence of a calculus in the gall bladder.

Gall stones may remain in the gall bladder for an indefinite time without the least pain; at other times there may be present the most dangerous symptoms such as I have described, without the slightest trace of jaundice. When impacted in the cystic duct, then the suffering becomes intense, and so long as it remains, although no bile can enter into the gall bladder or escape from it, yet it offers no obstacle to the direct flow of the biliary secretion from the liver into the intestine. So long as this impaction remains the patient is in the condition of a person upon whom cholecystectomy has been performed.

The office of the gall bladder is to act as a diverticulum and a receptacle, and contains the excess of bile secreted during the intervals of digestion; aside from this it is non-essential; it is absent in many instances, in several animals, such as the horse, the deer, the elephant and in many birds, such as the ostrich and the parrot.

Budd says the effects of the closure of the cystic duct, on digestion and the general health, are much less serious than might be expected, and are sometimes of very little import. Dr. Alexander Simpson report a case in the *Edinburg Medical Jaurnal*—of a child in whom no trace of a gall bladder was found at the autopsy.

How can we account for the presence of pain when a calculus is impacted in the cystic duct? The solution readily presents itself, if we remember that the gall bladder is provided with a muscle, and that it must contract with increased force to overcome the resistance offered by the calculus fixed in the cystic duct, just as the urinary bladder contracts with increased energy when a calculus is arrested in the canal of the urethra, or the ureter contracts when a renal calculus travels along it to the bladder.

What is the condition of the gall bladder when digestion is going on in the stomach? It is full of bile and it empties itself by a powerful contraction while the digested food is passing through the duodenum.

No one perhaps stated the cause of hepatic colic more clearly during digestion than Bartholow. He asserts that common observation shows that the symptoms of hepatic colic usually declare themselves in two or three hours after a meal. At that time when the presence of the chyme in the duodenum solicits the flow of bile, the gall bladder contracts on its contents in direct ratio to the amount of bile present, and with the gush of fluid the concretion is whirled into the duct.

The muscular tissue having undergone hypertrophy—owing to the efforts to overcome the obstruction dependent upon the impacted calculus, the paroxysms of pain are more likely to occur at this time than any other, and the persistent and unyielding obstruction will produce the distension and enlargement of the gall-bladder already alluded to. There is yet another difficult problem to solve—why is it that in some cases we have distension augmented until the viscus descends even to the iliac crest, containing pints of fluid, while in other cases, a much less frequent occurrence, we find atrophy of the gall bladder contracting and embracing the calculus. Rokitansky believes that its obliteration is frequently consequent upon inflammation.

The enlargement of the gall bladder is largely due to the presence of the mucus secretion from the lining membrane of the gall bladder itself.

There came to my office in the month of December 1890, Mrs. C., aged 34, from Colorado. She complained of pain in in the right hypochondriac region and shoulder; it was increased by violent exercise. There was present also headache and diarrhœa; she was pale and emaciated. She described her sufferings as follows: excruciating pain lasting several hours, usually occurring two hours after meals. The relief was as sudden as the attack. After the paroxysms of pain the tenderness was felt for several days. Not the slightest evidence of jaundice was ever present. There was nothing abnormal in the urine. Upon examining the abdomen I found a tumor to the right of the umbilicus and with its lower part upon the brim of the pelvis. Its shape was pyroform. In size as large as the largest pine-apple. It was free from tenderness. The treatment had been medical only; numerous remedies were tried without affording her any relief. She came to consult me with reference to the possibility of a surgical procedure. I stated to her my diagnosis: that her trouble resulted from calculi in the gall bladder with possibly obstruction of the cystic duct causing distension, that the painful paroxysmal aggravations were due to this cause, and if left alone my prognosis was that a fatal result would inevitably follow. She consented to an operation, and on Dec. 11, 1890, at the St. Joseph Hospital, after observing minutely the special antiseptic precautions which precede laparotomy, general anæsthesia was induced by the inhalation of ether; afterwards the patient was placed upon the table suitably prepared, and the abdomen cleansed. An incision four inches in length was made from the tip of the cartilage of the tenth rib down towards the fundus of the tumor. On reaching the peritoneum it was picked up by catch forceps, and the line of incision continued with scissors. An index finger was introduced to feel for the gall bladder. It was easily discovered, and I was enabled to bring up the fundus with the fingers without the use of the forceps; and lodged in the wound. Its size was diminished by aspirating. Sponges were carefully packed, to receive whatever fluid might escape during this part of the operation. I used catch forceps, seized the fundus at the upper and lower portions, and incised it, inserting my finger to feel if any calculi were present; discovered there were, and removed six of them impacted in the cystic duct. They were removed by using a small scoop and forcep. The gall bladder was now drawn freely into the wound, and the edges of the abdominal wound and the gall bladder were closely kept together by an assistant. The edges of the wound in the gall bladder were sutured by a continuous thread of carbolized silk; this done the bladder was washed out with warm water and a careful search made for calculi; none were found, after which a drainage tube was inserted, and iodoform dressing applied.

The fluid was glairy mucus; the evidence of bile wanting. This, in connection with the quantity—several pints—clearly indicated that the obstruction had existed a long time. I allowed the drainage tube to remain until the 24th day of December. No bile escaped from the wound during or after the operation. A fistulous opening remained and continued to discharge mucus for several months. All my efforts to close it were only partially successful, for if closed for a week or ten days, she complained of fulness and pain over the region of the gall bladder; but when a discharge took place it was followed by relief. At one time when the closure existed longer than usual she concluded to visit Buffalo in the month of April to consult the eminent surgeon Dr. Park. He, after an examination, advised her to return and renew the opening first made, and pack the gall bladder with iodoform gauze. I followed his suggestions but failed to obliterate the cavity. I now attempted by various methods to change the interior of the gall bladder by using injections of compound tincture of iodine, tanin, gallic acid and nitrate of silver. I thus reduced the cavity until it held only a half drachm. It seemed almost closed when she left me for her home. Her general health was marvelously improved; she was free of pain unconfined; exercised freely without exciting any of the symptoms that previously distressed her; even with her improvement I was compelled to listen daily to her complaint concerning the slight stain upon the dressing; but I consoled myself that the varying quality of mentalization is due to the fluctuations in the activity of the hepatic function, and that many a dark ecclesiastical dogma about man and God, have had their origin in the cystic duct.

I firmly believe after reading the lamentations of

Jeremiah when he exclaims "My bowels; my bowels," "I am pained, I cannot hold my peace. My liver is poured upon the earth," I believe that he had obstruction of the cystic duct, and that Jonathan Edwards was afflicted with jaundice when he wrote his ghastly sermons on eternal damnation. George Sand thus afflicted exclaims, "Since my disease first appeared, I have had happy years, and when it seized me again, although I was in the condition most favorable to love of life, I felt myself suddenly seized with a desire for eternal repose."

After the digression it remains for me now, only to present for your consideration the question, "whether in cases where the gall bladder is filled with mucus dependent upon continuous obstruction of the cystic duct—it were not better to perform cholecystectomy? I wish here to emphasize the fact that the cystic duct is often closed by adhesive inflammation, and that it remains closed in such cases after the calculi are removed. In support of this view I will quote from Budd, who says, "A gall stone too large to pass through the duct floats with the current of the bile, to its mouth, and becomes firmly lodged there, and generally leads to lasting closure by adhesion beyond the stone, the effect being closure of the cystic duct."

In another case such as the one reported I would ligate the cystic duct at two points, and divide between them, and as the gall bladder has ceased to be a receptacle for bile, I should remove it. We remove the ovaries when they become cystic, also the spleen and the kidney, and why not the gall bladder?

LATE MANIFESTATIONS OF APPENDICITIS AND THEIR TREATMENT.

Read in the Section of Surgery and Anatomy, at the Forty-third annual meeting of the American Medical Association, held in Detroit, Mich., June, 1892.

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The late manifestations of appendicitis are so frequent and so serious that it would seem to me that the discussion by this distinguished body would be of interest and benefit. The question of operation in primary attacks has within recent years received wide consideration at the hands of American surgeons, and the operation has been placed upon a lasting and scientific basis. Witnessing cases which have not thus been operated, together with the serious complications which have succeeded, after apparent recovery from the local disease, I have been further impressed with the correctness of the position which has been taken in favor of early operations. I have recently had an opportunity for conversing upon this subject with a large number of prominent surgeons of Europe, and have repeatedly met the expression that with them in Europe, appendicitis does not seem so serious, nor to demand operation so frequently as has been recommended by American surgeons, and the opinion was expressed that it was safer to leave cases of appendicitis to pursue their natural course without operation or surgical interference.

As I recall the cases of appendicitis which I have seen in consultation both before and since early operation has been advocated, I am strengthened in my opinion that the natural history of the malady, both in its primary attacks and subsequent history, is so serious as fully to warrant the position taken by American surgeons in favor of early operative interference.

For the introduction of this discussion I have selected six cases, each differing from the other, as perhaps the best means of presenting the subject. I have purposely selected as few cases as will serve this purpose.

The first case is one of the most common of those in which repeated slight attacks of appendicitis have ultimately eventuated in one of serious import. The case was A. H., æt. 21, with good family and personal history. He had repeatedly suffered from abdominal pain, which he supposed to be colic. On May 3, 1892, he had a similar attack, and went to his office in the morning but returned home in a few hours. He vomited and the pain continued, but the patient simply laid upon the sofa and did not take to his bed until perhaps thirty hours after the beginning of the attack. His temperature and pulse remained normal. His bowels moved with a saline, on the second day of the attack. On the third day of the attack there was some tympanitis and tenderness upon the right side, but the pain did not become localized in the region of the cæcum until the fourth day, and at that time his pulse was normal and his temperature was 99. On the fifth day the temperature and tympanitis increased slightly, while on the sixth day the evening temperature had reached 102 1-5, and the region was extremely tender. On May 10, the seventh day of the attack I was called to operate on the case by my friend, Dr. Boyd, of Akron, meeting in consultation Dr. Boyd, Drs. Jacobs, Sr. and Jr., and Dr. Hoover. I found the patient's abdomen considerably distended and very tender. There were dulness and resistance in the region of the cæcum. The pulse was 80 and the temperature 100. At 10 A.M., I operated, evacuating perhaps 8 oz. of pus. I found a gangrenous appendix containing a concretion. In the removal of the appendix the abdominal cavity was opened in two places, the presenting intestines were kept thoroughly flooded with water and were subsequently held back by tampons of iodoform gauze. The progress of the case has been satisfactory in every respect. The interesting feature of this case is that the attack of appendicitis which eventuated in a large abscess, seriously threatening the patient's life, did not differ primarily from what he had considered simple attacks of colic, and it is not at all improbable in my mind that the previous attacks of pain had the same origin as the last.

The second case was of Mrs. H. F., æt. 30, a woman of medium size and well nourished. On Sept. 9, she complained of pain in the abdomen, but did not locate it in the right side until the day following. The second night she took a tablespoonful of Carlsbad salts, and had a free evacuation upon the morning of the third day. On the same day she was seen by Dr. Bock, who administered a cathartic and applied fomentations. The temperature previous to the sixth day of the attack did not exceed 101, but afterwards rose gradually until Sept. 20, eleven days after the beginning of the attack when the evening temperature was 104. The patient had had no chill or vomiting, but had had slight nausea. I first saw the patient on Sept. 20, the eleventh day of the attack, and found her very tympanitic, with temperature 105; the abdomen was not tender. On the right side from the cæcum upward toward the ribs was dulness, though there was resonance on deep percussion. The skin was somewhat discolored, due as it was supposed, to external applications. There was an indistinct sense of fluctuation, but all local symptoms were rendered less prominent by reason of great general tympanitis and local tenderness. An examination the following morning under an anæsthetic showed fluctuation to be distinct. On Sept. 21, twelve days after the attack, in the presence of Drs. Carl and Herman Bock, and Dr. Krause, I operated upon the patient. Just previous to the operation temperature was 103⅕, the pulse was fairly strong, and the bowels had moved several times with a passage of considerable flatus. On dividing the abdominal wall in the region of the cæcum fully two quarts of black ichorous fluid were evacuated, and with it large masses of broken down gangrenous tissue. The peritoneal cavity was not opened. The abscess cavity extended from under the ribs above to Poupart's ligament below. The patient endured the operation well. The same night she was in excellent condition. At 2 A.M., the following morning she told Dr. Bock, who spent the night with her, to go and lie down since she did not need him, and would call him if required. Some time later he noticed that her breathing was labored, and within an hour she was dead

At the post-mortem examination the abdominal cavity was found free from inflammation. The vermiform appendix had wound around the head of the cæcum and was lying posteriorly and to its right side pointing upward toward the liver. Its exact length could not be determined since its extremity was entirely destroyed by gangrene, but the portion remaining measured five inches. No cause of death could be found in lungs, liver, heart or kidneys. Though this case should more properly be classed with those in which the abscesses developed with a primary attack, it nevertheless exhibits in a most emphatic manner the enormous extent to which abscesses the result of appendicitis may burrow upward and downward before entering either the abdominal cavity or reaching the surface, and serves to emphasize the importance of earlier operation.

The third case is of B. M., æt. 34. He had always been strong and well until October 5, 1891, when he was seized with pain in the lower part of the abdomen. He was under the care of Dr. O. B. Campbell, who called me to see the case on October 10. Unfortunately my notes upon the case are not very full, but I found him somewhat tympanitic, with unmistakable evidences of an abscess over the cæcum. The next morning, with Dr. Campbell and Dr. Nevison I opened the abscess and removed the vermiform appendix without opening the abdominal cavity. The cavity was washed and packed with iodoform gauze. The subsequent history of the case was favorable and healing was rapid. On February 13, 1892, patient visited my office and said he was well. Immediately thereafter he resumed his daily work. About May 1, he came to my office and told me that after working about two weeks he began to feel badly, and developed a serious cough. At this time he was coughing frequently and expectorating considerable quantities of material closely resembling anchovy sauce. He was carefully examined by Dr. Edward F. Cushing, who reports as follows: "You will find in the left back dulness, with absence of fremitus and feeble breath sounds. Below the eighth rib is a narrow strip of bronchial breathing with increased voice sounds above; similar sounds in the lateral and anterior aspects of the chest; heart is not displaced but I expect an exploratory puncture would discover pus and that his purulent expectoration represents an empyema broken into the bronchial tube. The expectoration I have not examined, but it is chocolate color and strongly suggestive of hepatic origin, though I did not discover any especial enlargement of the left lobe of the liver." The expectorated pus closely resembled in color anchovy sauce, spoken of by Osler as indicative of liver origin. My own examination had previously led me to a similar conclusion as that of Dr. Cushing, and after observing the extent to which the case previously described had burrowed upward in the direction of the liver, together with other cases of a similar sort which I have seen, I have no question that the conclusion arrived at by Dr. Cushing is the correct one. Unfortunately, I have not had further opportunity of observing the case. Though the primary operation in this case was apparently completely successful, its further history renders it probable that an earlier operation might have wholly averted its serious secondary manifestations.

The fourth case was of F. H., male, æt. 23 years. Previous to 1877 he enjoyed good health. That fall he had what was called inflammation of the bowels, accompanied by vomiting and pain, chiefly in the cæcal region. He seemingly recovered from this attack, but six weeks later had another. These attacks recurred at intervals of about six weeks, accompanied by vomiting and pain in the cæcal region and occasionally attended by chills. In 1881, four years after the primary attack, patient thinks he passed some pus, per rectum, but never noticed it at any other time. In 1883 the patient was kept quietly at home on one floor during six months, in hope of curing his malady by rest. Much of the time was spent in bed. In 1889, twelve years after the primary attack, the patient was laid up in bed for two weeks. For nearly six years he had suffered from repeated attacks of vomiting with pain in the right side of the abdomen, the attacks being accompanied by tenderness and often by a chill. Until I saw the patient in Sept., 1889, no diagnosis of the case had ever been made. Just inside of the anterior superior spinus process of the ileum I could find, on deep pressure, a small resisting mass; pressure produced pain. I gave him a cathartic. On the day following, I saw him in consultation with Dr. H. K. Cushing. A very small indurated mass could still be felt deep in the right iliac fossa in the region mentioned. An operation was agreed upon, and this was performed in Charity Hospital on Feb. 7, in the presence of the House Staff and Dr. N. Stone Scott. A curved incision was made to the inner side of the right anterior superior process of the ileum. The cæcum was pushed inward and the abdominal cavity was not opened. In the iliac fossa, wholly posterior to the cæcum was found a cavity containing pus. The cavity measured about one-half inch transversely, and extended from a little above the spine of the ileum downward to Poupart's ligament. This was cleared, washed and packed with iodoform gauze. The progress of the case was very satisfactory, and the patient has been entirely well since the operation and free from the attacks of pain, fever and chills, which previously had wholly incapacitated him for business, and although a small sinus has remained unclosed, the patient has been able to fill an important business position, and has enjoyed good health. The striking feature in this case is that a young man during twelve years should have passed through the hands of several physicians, having chills and attacks of vomiting and pain referred to the region of the cæcum, during this time being largely incapacitated for business, without his malady having been diagnosticated or an operation proposed for his relief.

The fifth case is O. L., male, æt. 19. He had good health and has a good family history. In December 1891 patient was seized with pain in the region of the cæcum, and was sick for 7 weeks, his temperature reaching 103. Most of the time patient was in bed. At the end of this time he was beginning to move about when he had a relapse and from that time until operation there were frequent attacks of pain in the region of the cæcum. The bowels were regular during this period. April 26, 1892, I first was asked to see the case, by Dr. Upson of Conneaut. The abdomen was flat, and to secure satisfactory examination, he was placed under an anæsthetic, since without it he resisted deep pressure. Dr. W. J. Scott examined the case with me. Upon deep pressure, a distinct resistance could be felt in the region of the cæcum, extending a short distance upward. Under an anæsthetic the right leg could not be fully extended, and when the patient walked, he inclined markedly to the right side. It was evident that the psoas and iliacus muscles did not permit perfect extension. May 12, I operated at Charity Hospital, in the presence of Dr. Upson of Conneaut, Dr. Bagot of the Rotunda Hospital, Dublin, Dr. Nevison, and the House Staff. An incision through the right linia semilunaris was made from the level of the anterior superior spinus process of the ileum upwards. The peritoneal cavity was opened by an incision 5 to 6 inches in length. The head of the colon was examined, but there was no vermiform appendix to be found free in the abdominal cavity. Slight induration, but no fluctuation could be felt behind the cæcum. The cæcum was drawn toward the median line and dissected from the iliac fossa, when the finger entered a small cavity perhaps $\frac{3}{4}$ of an inch in diameter, extending vertically for about 5 inches, its lower extremity being nearly down to Poupart's ligament. A very small amount of inspissated pus was found and in it was a small concretion from $\frac{1}{2}$ to $\frac{3}{4}$ of an inch in diameter. The entire length of the sinus could not accurately be determined since at either extremity its calibre was small. Remains of the appendix were not found since it would have increased the dangers of the operation to have persisted in searching for them. The patient's condition was very weak, and his pulse rapid before the operation, and though the operation seriously taxed his strength, his progress has been on the whole, very satisfactory, and he is now up and about, and seemingly on the road to recovery.

The sixth and last case is one of extreme interest, and one in which I have only been lead to a diagnosis after operating upon a number of similar cases. The patient, F. H., was about 35 years of age. He had always enjoyed good health. On November 26, 1889, patient was feeling very well. His physician, Dr. Sabin, of Warren, gave him a cathartic and the next day patient felt better, and the night of the second day, attended a lodge meeting where he was seized with intense abdominal pain. He reached home with great difficulty, and soon afterwards vomited. He was most comfortable lying in bed with his legs flexed. The pain was general over the abdomen; hot application gave no relief, but Dr. Sabin secured relief after one to two hours by the application of chloroform. Patient's bowels moved with saline, and the highest temperature was about 101½. A week after the attack, patient walked to his office. The patient was up and about until December 15, and on December 16, Dr. Sabin could find some tenderness in the region of the cæcum, though there was no tumor. Temperature that evening was 102, and the highest temperature reached before I saw the patient was 103. December 31, about five weeks after his

first attack I saw the patient with Dr. Sabin. He bore the appearance of one long sick, and was thin and sallow, and was having severe night sweats. Though when well patient had slept upon his face, he now sleeps best upon his right side. When he turns to the left side, he must prop up his abdomen with a pillow, otherwise he feels a dragging sensation in the right side. When lying upon his back he can straighten his legs without pain, His bowels have moved regularly; he has had no chill, but early in the evening has wanted to be warmly covered. On examination there was no unnatural fulness anywhere. In the region of the cæcum there was no induration but there was some tenderness on deep pressure. The diagnosis of appendicitis was made and an operation was advised, and for this purpose the patient was brought to Charity Hospital in Cleveland, on January 3. At this time he was seen in consultation by Dr. H. K. Cushing, Dr. Sabin and myself. Since I had seen him in Warren, the tenderness in the right iliac region had wholly disappeared. The patient also said he had some pain at the base of the lungs, and some dulness could be discovered at this point. The change in symptoms led us to defer the operation, and on January 7 the patient was seen in consultation by Drs. H. K. Cushing, W. J. Scott and myself. The conditions remained the same as on the week previous, and the diagnosis of appendicitis was thrown so much into doubt by the disappearance of pain in the region of the cæcum and the appearance of dulness at the base of the right chest that operation was still deferred. The evening temperature had ranged from 103 to 104. As time progressed there was a gradual increase of dulness in the right side corresponding to the right lower lobe of the lung, accompanied by slight broncophony, a few moist râles and cough with some purulent expectoration. In Febuary, the patient's condition gradually improved, the region of the cæcum remained free from pain and the temperature did not exceed 102 and it seemed not improbable that it was an obscure case of tuberculosis. This opinion gained strength since there had been cases of tuberculosis in the family. On February 14 I saw the patient at his home in Warren. The condition of the lung seemed slightly improved, but the patient was much the same. On March 16, I again visited the patient in Warren. The dulness in the chest had increased slightly, and there was an absence of respiration at the base. For the purpose of exploration an aspirating needle was inserted; though inserted but a short distance and in the usual manner, there immediately followed a most copious discharge of blood from the mouth, which came near suffocating the patient. He recovered from this however, and seemingly improved. The winter of 1890 and 1891 the patient spent in the South, troubled with a cough and expectoration, and it seemed probable that the case was one of tuberculosis. He gradually improved, however, and was able to do some professional work, which was that of a lawyer. Later however, he developed trouble in the right leg and on October 1, I opened an extensive abscess of the right leg. These abscesses formed repeatedly, extending from the knee almost to the groin, and have been repeatedly opened by Dr. Sabin. In January of the present winter patient's condition was so low that it was supposed that he could live but a few days; he has however improved considerably. From a further study of the subject of appendicitis and experience gained in operating upon these cases, I am convinced that this case was primarily one of appendicitis. Though the local manifestations were followed by extension of the abscess upward either by absorption or directly to the right thoracic cavity, subsequently the progress of the disease has been downward, and the right thigh has been involved in repeated and extended suppuration. The grave error in the case was that it was not operated when first seen, as a case of appendicitis. I do not believe that tuberculosis ever played any part in the case.

It is unnecessary for the purpose of this paper to multiply further cases. Though I might cite others pointing to the same conclusion, those cited are sufficient in number to demonstrate the fact that cases accompanied by pain in the region of the cæcum with tenderness and perhaps vomiting, though there is no apparent temperature or collection of pus are of extreme gravity, and as positively demand operations as those in which collections of pus are evident.

The question remains, how are such cases to be operated. I have tried both the extra-peritoneal and the trans-peritoneal method. Though it is of course desirable to avoid the opening of the abdominal cavity when possible, and though I have repeatedly succeeded by this method in relieving a deep seated appendicitis, there are many cases in which operations must fail unless the abdomen be opened, for without it, the whole region of the cæcum cannot be thoroughly examined, and the danger of tearing the tissues about the cæcum, for the purpose of locating an appendicitis, accompanied by very slight collection of pus, is greater than freely to open the abdominal cavity, find the cæcum, locate the seat of the appendix and open the inflammatory mass which may contain only a small amount of pus with perhaps a gangrenous vermiform appendicitis, and a foreign body. During the operation the abdominal cavity may be shut off by means of tampons of iodoform gauze, and when the inflamed mass is opened, by means of a stream of water from a fountain syringe, all inflammatory material may thoroughly be washed away, and the abdomen kept free from contamination. A good way of dressing the wound is to carry a large drainage tube down to the point of inflammation and then thoroughly to pack the opening about it with iodoform gauze, By these means, the abdomen is kept closed from infection, the free discharge of pus through the tube is insured, and the iodoform gauze packed about the tube will upon its removal, leave a passage for the discharge of material from the inflamed cavity.

As to whether such operations should be performed in the intervals between attacks or only when an attack is in progress cannot be answered by any general statement. Each case must be decided upon individually. There are many cases however where there are chronic inflammatory conditions, such as several which have been cited in which operative interference offers the only opportunity for cure which can rationally be expected and in such cases I am strongly of the opinion that the seat of disease should be sought out without awaiting the occurrance of an acute attack. Since such operations are a severe tax upon the patient his opportunity for recovery may be enhanced by an operation performed in his interval between attacks, when his general condition and strength are better.

REPORT OF A CASE OF GUNSHOT WOUND OF LIVER AND STOMACH. LAPAROTOMY. RECOVERY.

Read in the Section of Surgery and Anatomy, at the Forty-third Annual meeting of the American Medical Association, held at Detroit, Mich., June, 1892.

BY JAMES T. JELKS, M.D.,

OF HOT SPRINGS, ARK.

Formerly a Member of the State Medical Society of Georgia; a Member of the Southern Surgical and Gynecological Society, Mississippi Valley Medical Society, Chicago Medical Society, Hot Springs Medical Society, State Medical Society of Arkansas, American Medical Association; formerly Secretary of the Obstetric and Gynecological Section, American Medical Association; and late Professor of Surgical Diseases of the Genito-urinary Organs and Venereal Diseases in College of Physicians and Surgeons, Chicago, Ill.

Some time in April I received a note from Dr. Eugene Hay, saying he had a case he thought required a laparotomy, and asking me to come to him.

I responded, and found the doctor at what is known as "Dirty Six," a tough suburban resort. In a small cottage, lying on a bed, was a young man apparently 22 years old. He was resting very quietly, his face covered with sweat. Turning him partly on his right

side, Dr. Hay showed me the wound of entrance—a bullet hole 3 inches to the left of spinal column and just at lower border of last rib. There was no wound of exit. He had vomited quite a quantity of blood. There was no tenderness; pulse 70 but quite soft, and as stated above, his skin was covered with sweat. I agreed with Dr. Hay that indications pointed to a laparotomy, and so advised the friends of the young man and the man himself. At first he refused an operation. Then stating the case to him as clearly as I could, telling him what the hæmorrhage meant, and what his prospects were both without and with the operation, he consented to have it done. This was about 3 A.M. We then proceeded to get ready as best we could. There was nothing in the house; we had to borrow the table, lamps, and even the hot water, from a restaurant across the street. So after boiling my instruments, I got everything in the best shape I could, and again asked him if he wanted the operation; he again consented, and was brought to the table. Dr. Hay gave the chloroform until the patient was anæsthetized, when it was turned over to Dr. How, and Dr. Hay assisted me.

The abdomen was then rendered as aseptic as we could make it with green soap, bichloride and ether, and by the light of the lamps I made an incision from the ensiform cartilage to the umbilicus, afterwards prolonging it about 2 inches below the latter point. All hæmorrhage was checked before the peritoneum was opened. When we entered the cavity of the abdomen some blood was visible, but not a great deal. At this time patient began to vomit blood, and during the straining the stomach was pushed out of the abdomen and lay in my hands; as it did so the bullet also appeared to the left of the median line, and lying loose. This was removed and handed to a bystander. I then carefully examined the anterior and posterior surfaces and the greater curvature, but could find no wound in the stomach. I then passed my fingers along the lesser curvature, but still could find no wound. Continuing my search, I found a bullet hole in the posterior edge of the liver, to the right of the aorta. By this time the flat sponges which I had used to keep the intestines in the cavity were with the latter extruded, and lay on the patient's abdomen. The intestines were carefully wrapped in warm towels and kept warm with boiled water, while I continued to search for other wounds. Finding none in the intestines, and being unable to stitch the hole in the liver, I wrapped a glass drainage tube in iodoform gauze and passed it down underneath the stomach, and placed it in the wound in the liver. This bag of iodoform gauze I packed with more gauze, thus ballooning it, and a strip of same material was passed down the tube into the hole in the liver. After this was done, I flushed the cavity of the abdomen with warm sterilized water by passing the nozzle of the irrigator down into the bottom of the pelvis and allowing the water to fill and overflow the abdomen. In doing so some clots and blood were washed out. I then proceeded to sponge out the cavity, getting it as dry as I could. During all this time Dr. Hay was assisting me, while Dr. How was giving the anæsthetic. When this was completed, we had great difficulty in getting the intestines back into the abdomen. Patient's pulse began to grow quite weak, and hypodermics of whisky and digitalis were given. Finally the abdomen was closed with sutures of braided silk, and coaptation sutures of plain silk, the drainage tube coming out at the upper end of the incision; the iodoform bag with its packing shutting off the abdominal cavity from the wound in the liver, and also from the posterior surface of the stomach.

I saw the patient a few times afterwards with Dr. Hay, and for the subsequent data I am indebted to him.

The glass drainage tube was removed on the third day, and on the fifth the iodoform gauze was taken out perfectly sweet; drainage of bloody serum had been perfect. Into the place of the large bag of gauze I now pushed, with the sterilized handle of a tenaculum, a strip of same material, and allowed it to remain several days. This latter was removed by Dr. Hay and the hole closed with a suture.

Day after the operation temperature was 99° in the morning and 100° at night. During the next day he had considerable pain in the abdomen, with tympanitis. We now gave him saline purges until his bowels moved some eight or ten times, with entire relief of the tympany.

During the next five days he was nourished by the rectum. He was allowed nothing by the stomach but crushed ice for three days, save the saline mentioned, when a little water was permitted. His temperature ran from 99° to 100° during the forenoon, and to 100° or 101° during the afternoon. On tenth day we removed the sutures and found perfect union, with one stitch hole abscess. Dr. Hay redressed the wound. The day after he telephoned me that the man had been coughing and had torn open the line of union. He visited him and found the line open for about 4 inches, with a knuckle of intestine protruding. This he replaced. There were adhesions between the parietal and intestinal peritoneum throughout the remainder of the open wound. These he separated with his fingers and put in several sutures through all the tissues, and brought the wound together. The patient stood this without an anæsthetic. These stitches were allowed to remain in place for two weeks, when they pere removed, the line of union being found strong. The wound was now covered with aristol and carbolized gauze, and several adhesive plasters strapped the latter in place, thus supporting the parts to prevent a new rupture.

During the healing process patient complained of a constant pain in one spot in the line of incision, which I think may be explained by the adhesions which had been formed. At the end of three weeks the young man was well, and in four weeks was up. He now has no trouble save some "bloating" of the abdomen from gas.

Discussion.

Dr. Christian Fenger, of Chicago, in opening the discussion, said the main feature in wounds of the liver is undoubtedly the hæmorrhage, and this is probably better stopped by packing the wound with iodoform gauze than in any other way. Ligatures will not, of course, hold in the liver substance. He had seen one instance of subcutaneous rupture of the liver, and in operating for a tumor of the abdominal cavity a year after the infliction of the injury, the wound in the organ was still visible.

Dr. E. H. Gregory, of St. Louis, wanted to know whether, in Dr. Jelk's case, hæmorrhage was going on at the time of operation. Being answered in the affirmative he said, that though he thought the operation was not wrong for it fulfilled what seemed to be the indications, he, as a conservative surgeon, would like to know whether the man might not have recovered by his line of treatment, viz., by leaving him alone. He believed that by following this course, we should have had another case of recovery without operation.

Dr. Thorn, of Toledo, reported a case in which there was a small laceration in the liver, and the patient died from loss of blood. He believed operation would have saved his life.

Dr. D. A. Watson, of Jersey City, had seen a great many cases in his experiments on animals, and in a vast majority, even though the laceration was very extensive and the wound filled with blood, the animal recovered, except were the main arteries were involved. He thought danger lay in the fact that the bullet might carry septic material into the abdominal cavity, but beyond this he believed we are more afraid of lacerations of the liver than we have any just right to be.

Dr. Murdoch, of Pennsylvania, defended the operation on the ground that a surgeon would feel that he had not done his full duty if he did not open the abdominal cavity and notwithstanding what might be said about the innocency of a bullet in the cavity, he thought any man would rather have it out.

Dr. Gregory did not wish it to be understood that he objected to the operation, in fact, he might have been betrayed into doing it himself, though he felt sure he would regret it later. He thought that the bullet left in the cavity would have done less harm than the operation.

Dr. Griffin, of Missouri, reported three cases of gunshot wounds of the abdomen which he had seen within the last year and in all of which he had operated.

Dr. Walker, of Tennessee, reported a case in which the patient refused operation. The autopsy showed anterior border of liver torn to shreds. Patient died of hæmorrhage.

Dr. McIntyre, of Missouri, said there was no shadow of doubt that men did get well who had these injuries, but he congratulated Dr. Jelks on the success of his operation and thought that a ball rolling about in the cavity of the abdomen would not be likely to become encysted.

Dr. Dolan, of St. Louis, thought no surgeon would refuse to operate where there was vomiting of blood as in Dr. Jelk's case. He could not see how this symptom could occur if the stomach were not punctured.

Dr. Palmer, of Wisconsin, considered the case to be one of those cases in which it is the absolute duty of the surgeon to operate.

Dr. Quinby, of Jersey City, said it was his rule to operate when there was a foreign body where it might do harm.

Dr. Jelks felt sure that if Dr. Gregory had been called to the case he would have diagnosed gunshot wound of the stomach. The surgeon's duty is to offer the operation and if accepted he must do it. If we wait twenty-four hours before operating we have passed the golden opportunity. Statistics show 63% of deaths in liver wounds. Experiments have demonstrated that the blaze of fire renders a bullet aseptic. The harm is done in its passage, not after it has stopped.

SOCIETY PROCEEDINGS.

American Otological Society.

Twenty-fifth Annual Meeting, held at the Fort Griswold House, New London, Conn., July 19, 1892.

(*Continued from page 142.*)

It seems unaccountable that only one of these cases resulted fatally when it is known that any considerable quantity of dead bone in the vicinity of the brain, may induce fatal cerebral disease. The author did not think it proper to attempt the removal of dead bone where the meninges are in danger of being encroached upon.

Numerous cases are on record (one in the author's book) where a considerable portion of the bone has separated leaving an uncovered meninges without fatal consequences. Moreover when all dead bone is removed, reparative action does not commence until a new barrier of dead bone has been established.

B. Alexander Randall, M.D., of Philadelphia, read a paper entitled

PRELIMINARY NOTES ON CRANIOMETRIC STUDIES IN RELATION TO AURAL ANATOMY.

The author referred to the numerous careful studies made of the temporal bone with special relation to operative procedure and the conflicting results of Koemer and Schultzke as to a relation between the cranial index and the dangerous position of the lateral sinus and the middle cerebral fossa. Recognizing from the first the need of more extensive examinations, he had been accumulating data bearing on the matter, and offered now a preliminary report principally to secure criticism of his methods. Only 122 skulls, 73 broad headed, 33 long headed and 16 medium in index were used in the tabulation, and the only clear showing was that maximum or minimum dimensions might be found on either side and in any form of skull. The greater danger of the right side and of the brachycephalic skull receive slight confirmation, the cerebral fossa being actually more often lower on the left, but no deductions should be attempted from so small a series of studies, and any indications are probably worthless which are derived from less than one thousand skull measurements.

Dr. Charles J. Kipp, of Newark, New Jersey, reported a case of purulent inflammation of the middle ear with double optic neuritis and other symptoms of intra-cranial lesion, but without tenderness of the mastoid process, in which the opening of the mastoid cells was followed by rapid subsidence of the optic neuritis and cure of the disease.

Particular attention was called to the absence of tenderness over mastoid even on percussion,and to the desirability of repeated ophthalmoscopic examination in prolonged middle ear disease.

Dr. C. J. Blake, of Boston, read a paper entitled

MASTOID CASES.

Of 25 cases of mastoid congestion and inflammation seen in the first six months of this year, 3 were treated by continuous gold coil, with excellent effect. The remaining 22 cases came to operation at various stages of the mastoid disease and with various complications. Two cases died, one on the 9th day, complication with pneumonia, and the other on the 10th day with meningitis from extension of the suppurative process from the middle ear through the tegmen lympani.

Dr. H. Knapp, of New York, read a paper entitled

CASE OF CHRONIC PURULENT OTITIS MEDIA, OLD PULMONARY TUBERCULOSIS, OPENING OF MASTOID, DEATH FROM ACUTE BASILAR MENINGITIS. AUTOPSY.

The patient was a healthy looking man, age 35 years. About the middle of April 1892, he began to complain of headache apparently due to neuralgia. This however, was succeeded by slight elevation of temperature, but no change in the pulse, no tenderness over the mastoid, pupils normal. By April 27, there was drowsiness with nervous movements of the hands. Meningitis dependent upon aural disease was diagnosed by the attending physician. The patient was seen by two prominent neurologists who diagnosed cranial abscess from ear disease. The speaker saw the case May 3. There had been discharge from the right ear for three years, which had ceased during the previous week; temperature 102.2. Headache, stupor, incoherent difficult speech, delirium, pupils and fundus normal, no painful spot on percussion of skull. The diagnosis was concurred in and operation urged, which was done next day. The mastoid was found sclerosed throughout. The superficial portion of the bone presented some evidences of disease, but the deeper the bone was exposed, the healthier it appeared. The operation was then suspended. The patient continued to sink and died a few days later.

The autopsy showed marked evidences of basilar meningitis. The lungs were then examined and distinct evidences of pulmonary tuberculosis found. The patient had presented no symptoms suggesting examination of the lungs and all the indications pointed to cranial suppuration following aural disease.

Dr. J. B. Emerson, of New York, read a paper entitled

A CASE OF PYÆMIA FOLLOWING ACUTE SUPPURATIVE OTITIS. RECOVERY.

A. D., female, 24 years of age, admitted to Manhattan Eye and Ear Hospital, April 4. April first, pain appeared in the left ear, followed on the third by discharge. The ear trouble had followed grip. Temperature on admission was 100° pulse 104, free purulent discharge. No special tenderness over mastoid, no redness or œdema. The temperature to April 10, varied between 101° and 102°; April 10, morning temperature 101°, slight chill: evening temperature 105°, pulse 125. No pain except in back of neck. Tenderness much less over mastoid and left side of head, no redness or œdema over mastoid; ear discharging profusely. Condition continued about same until April 15, when evening temperature reached 105.4°, no redness, œdema or tenderness over mastoid, free discharge from ear, signs of septic pneumonia. The general condition of the patient continued to improve, but an abscess developed over the right sterno-clavicular articulation. Later a second collection of pus formed over the sternum. May 18, an abscess formed above the sternum. This was opened. May 29, swelling formed over left side of the neck. June 3 an incision was made into the swelling and pus found at a depth of one and a half inches; no direct communication with the mastoid could be found. Following this the patient slowly and steadily improved and was discharged August 4, the treatment extending over a period of four months.

Dr. T. Y. Sutphen, of Newark, N. J., read a paper entitled

MASTOID OPERATION IN A CASE OF MIDDLE EAR DISEASE WITH SEPTICÆMIC SYMPTOMS AND CEREBRAL COMPLICATIONS.

March 17, 1892, the speaker was called to see Miss B. K., æt. 16 years. There had been chronic otitis media of left ear for several years. For a few days there had been intense pain and a temperature of 105°. No sign of mastoid trouble other than the pain. The next day there were general septicæmic symptoms with chills, alterations in temperature and vomiting. A hard swelling beneath the sterno-cleido-mastoid muscle was discovered. May 22, the mastoid was opened; there was only a drop or two of purulent fluid. The condition of the patient continued very unfavorable until May 30, when pus began to flow freely from the mastoid wound, the temperature then fell to 99° and the patient made a rapid recovery.

Dr. Gorham Bacon, of New York, read a paper entitled

A CASE OF MASTOID DISEASE FOLLOWING AN OPERATION FOR THE REMOVAL OF ADENOID VEGETATIONS.

The patient, Annie R., æt. 30, came to the New York Eye and Ear Infirmary, Feb. 16, 1892. She gave the following history: She said that a physician had on Feb. 8, removed adenoid vegetation from the naso-pharynx, by means of the index finger and completed the operation the following day with forceps. She had a subacute pharyngitis at the time. Two days after the operation, she had severe pain in the right ear followed by a muco-purulent discharge on Feb. 16.

On the day of admission, she had a very anxious appearance, and had suffered from well marked mastoid symptoms for several days. She was immediately put to bed, and the Leiter coil applied, and the ear douched frequently with a warm boracic acid solution. Under the treatment the mastoid symptoms soon disappeared.

Feb. 23, a periosteal abscess on the right side was opened and about a drachm of pus escaped. An incision in a similar abscess on the left side gave a negative result. The patient made a good recovery and at no time did the temperature go above 100° F. The case was reported because the writer had not seen in the literature of the subject, any mention made of acute otitis media and mastoid disease following the operation for removal of adenoid vegetations. It is possible, however, that the carbolic acid solution which the patient was advised to syringe through the anterior nares by the physician before she came under the author's care might have had something to do with the etiology of the disease.

Dr. Samuel Theobald, of Baltimore, read a paper entitled

THE VALUE OF WEAK SOLUTIONS OF BICHLORIDE OF MERCURY IN THE TREATMENT OF OTITIS MEDIA SUPPURATION.

The author stated that boracic acid in fifteen grain solution was still, as it had been for some years, his first choice in the treatment of all cases of recent and in most cases of chronic otorrhœa. Boracic acid, however, occasionally fails to accomplish what is expected of it, and in exceptional instances aggravates rather than lessens the inflammation. It is in these cases that the speaker has recently used with very good effect, weak solutions (usually 1 to 8000) of mercury bi-chloride. The ear is simply syringed with the solution. Unlike some who have recommended the use of this agent in otorrhœa, he has not usually found it necessary to repeat the syringing more than once in twenty-four hours. Notes of several cases were given in which a prompt arrest of suppuration and disease of the perforation in the tympanal membrane followed the employment of the bi-chloride solution after boracic acid had been used without effect.

Dr. H. Knapp, of New York, exhibited a specimen showing perforation on the medial side of the mastoid, removed from a patient dying from cranial abscess.

AFTERNOON SESSION.

Dr. D. B. St. John Roosa, of New York, read a paper entitled

WOUND OF THE LATERAL SINUS IN THE COURSE OF MASTOID OPERATION FOLLOWED BY SEPTICÆMIA WITH RECOVERY.

The speaker remarked that there had been a number of cases reported in which the sinus had been wounded during operation, but that so far as he was aware, death had in no instance resulted from this accident.

The patient, a young lady, æt. 23 years, had for years suffered from recurrent attacks of suppuration of the left ear. It was thought that the mastoid was probably in a carious condition, and it was decided to open it, the drill being used. As soon as the bone was perforated the drill dropped into a large cavity, and the removal of the instrument was followed by a gush of venous blood which could not be checked by ordinary means. It was believed that the lateral sinus had been perforated. The wound was plugged with iodoform gauze. Four days later, when the wound was dressed, there was no trouble from bleeding. Symptoms of septicæmia then set in, but after two months of expectant treatment the woman made a complete recovery.

Dr. F. L. Jack, of Boston, read a paper entitled

REMARKABLE IMPROVEMENT IN HEARING BY REMOVAL OF THE STAPES.

In June, 1892, the author operated on a case of chronic suppurative otitis in a girl of 12 years. After removing portions of the membrana tympani, malleus and incus, examination showed the head of the stapes to be carious and it was decided to remove the bone. Previous to operation there was very little hearing in the affected ear. On the morning following operation the hearing was much better, and this fact suggested the possibility of good results from the removal of the stapes. Previous to this the speaker had operated on two cases of chronic non-suppurative middle ear inflammation by removal of the drum membrane, malleus and incus. The results as regards hearing were not satisfactory. Removal of the stapes is much better in its results and in the author's experience, there had been no

inflammatory reaction whatever. The method of operating was then described. Sixteen cases were reported in detail giving the results of tests for hearing before and after operation. Two of the cases were presented to the Society for examination.

The effect of the operation on the hearing as tested by the watch, in some was not marked in either way, indicating in some slight loss, in others slight gain. "The result which gives to the operation its importance is the marked improvement in hearing the human voice which is thereby accomplished. If persons who have heretofore heard only with difficulty can be made to hear with ease, by treatment unattended with danger, the operation described which has accomplished this result is certainly worth consideration. As to the reason why this effect is produced by the operation I have no theory to offer, other than the simple supposition that it is by the removal of a mechanical obstruction to the sound waves."

Dr. C. J. Blake, of Boston, read a paper entitled

MIDDLE EAR OPERATIONS.

The history of the surgical treatment of middle ear disease was first briefly referred to as showing that since Sir Astley Cooper's perforation of the membrana tympani for the purpose of relieving deafness and subjective noises, it has been definitely progressive.

So far as operation is concerned in suppurative disease where any interference with the ossicula is demanded, incus or malleus, or both, which is generally important.

In the chronic non-suppurative disease of the middle ear, however, where surgical interference is determined upon on account of obstruction to the sound transmission through the ossicular change, the removal of the incus or malleus may be considered merely incidental, since the stapes is the important element. Various procedures for the mobilization of the stapes have been proposed and practiced, but the removal of the stapes has until recently, been left out of serious consideration. The justifiability of this procedure is to be premised from the fact that the stapes is especially liable to be tied down by the reduplications found in about 80 per cent. of normal ears.

The writer's experience in this matter includes a series of experiments in various cases, beginning with the observations having reference to the diagnostic value of high musical notes (1873) extending up to the present time and including operations in the following sequence: 1. Excision of the posterior segment of the membrana tympani, allowing the sound waves to fall directly upon the stapes. 2. Formation of a flap from the posterior segment of the membrana tympani and attachment of it to the descending process of the incus for the purpose of transmitting the vibrations of the membrane directly to that bone. 3. Division of the incudo-stapedal articulation through a small triangular opening in the membrana tympani. 4. Attachment of a flap from the posterior segment of the membrana tympani to the head of the stapes, the incus being either wanting or removed. 5. Division of the incudo-stapedal articulation in cases of exiting perforation of the membrana tympani, division of the stapedal muscle and of mucous folds of adhesions. 6. Removal of the stapes itself. Mobilization of the stapes, including stapedenotomy and division of adhesion is of value in cases, the result of suppurative disease. Surgical mobilization is of comparatively little value in the chronic non-suppurative disease of the middle ear. For the improvement of hearing and the relief of tinnitus in the severe cases of chronic non-suppurative diseases of the middle ear, the disarticulation and removal of the stapes is likely to be of more lasting benefit than removal of the incus, or of the malleus and incus. The speaker would not, in the light of present experience, hesitate to recommend stapedectomy in cases where he had previously proposed dividing the articulation of the incus and stapes and division of the tendon of the stapedius muscle.

The operation varies in difficulty in individual cases, but is more easily done in the chronic non-suppurative cases, than in those in which the fixation of the stapes is an incident of a long continued suppurative process. The method of operating was then fully described.

EVENING SESSION.

Dr. B. Alexander Randall, of Philadelphia, read a paper entitled:

EXCISION OF MEMBRANE AND MALLEUS FOR CATARRHAL DEAFNESS, FOLLOWED BY SUPPURATION, MASTOID EMPYEMA AND BURROWING ABSCESS OF THE NECK.

A case was reported of chronic catarrhal deafness unimproved by ordinary methods, in which excision of the drum membrane and malleus was done under ether, the incus being pushed up and not extracted. No reaction followed till the fifth day, when high fever began, with severe pain and profuse muco-purulent discharge. This gradually lessened under treatment, but in about four weeks pain and swelling of occiput, mastoid and of neck at the angle of the jaw, gave evidence of mastoid empyema breaking into the digastric fossa. The usual incision was made over the mastoid, the pus evacuated from the digastric fossa and the neck abscess beyond, the bone sinus scraped and the outer surface of the mastoid trephined in the usual manner, opening the antrum freely. On irrigation, the fluid passed into the canal at first; then the fluid found its way into the pharynx by some lower opening. The temperature fluctuated greatly during the following fortnight, with oculomotor paresis, diplopia and some mental aberration, suggestive of intra-cranial abscess. Good recovery was ultimately made, but at no time was there any improvement of the hearing to compensate in the least for the suffering. While the severe symptoms might possibly be ascribed to an influenza attack, it is much more probable that the incus, which had been displaced upward, clogged the exit of the antrum and induced the empyema, thus furnishing a strong indication for the removal of the incus in any such operation, which even then may be followed by negative or unfortunate results.

Dr. D. B. St. John Roosa, of New York, read a paper entitled:

CASE OF EXOSTOSIS OF EXTERNAL AUDITORY MEATUS.

The patient, a woman æt. 46 years, had had trouble for twenty-one years, with impairment of hearing and tinnitus in right ear, and pain in both ears at times. Examination showed the external auditory canal to be almost completely closed by a bony growth at the junction of the osseous and cartilaginous portion. She could hear the watch only on contact. The mass sprang from the posterior wall, and left a small space between it and the anterior wall. On operation it proved to be a very thin plate of bone, and was removed by the chisel without difficulty. The patient did well, and the hearing distance for the watch went up to 12–40.

In the discussion which followed, Dr. C. J. Blake, of Boston, stated that in two different families he had seen multiple exostoses occurring in three generations, grandfather, father and son.

Dr. R. A. Reeve, of Toronto, reported a case of exostosis of the meatus in which the special indication for operation was that the growth had become so large as to press upon the tissues of the opposite wall of the canal, causing intense suffering.

Dr. E. E. Holt, of Portland, Me., exhibited an ear bitten off by a horse, and made a brief report of the case.

Dr. C. J. Blake, of Boston, exhibited the plans for the new Aural Building of the Massachusetts Charitable Eye and Ear Infirmary.

The following officers were elected in executive session:

President—Dr. Gorham Bacon, New York.

Vice-President—Dr. Huntington Richards, Des Moines.

Secretary and Treasurer—Dr. J. J. B. Vermyne, New Bedford, Mass.

Member of Executive Committee of Congress of American Physicians and Surgeons—Dr. W. H. Carmalt, New Haven; Alternate—Dr. F. B. Loring, Washington.

The following were elected to membership:

Dr. J. Elliott Colburn, of Chicago, Ill.; Dr. Robert Tilley, of Chicago, Ill.; Dr. B. F. Milliken, of Cleveland, O.

The Society then adjourned.

ABSTRACTS.

THE IMMUNITY CONFERRED BY TYPHOID FEVER.—Potain (*Le Bulletin Médicale*). One of the strongest arguments in favor of the specificity of typhoid fever is the immunity which is conferred by an attack of the disease. It does not seem to be so generally admitted that one attack of typhoid protects the individual from a second attack as is acknowledged with reference to variola, scarlatina, etc. Liebermeister (Ziemssen's Cyclopædia) admits that there is such an immunity conferred, but rates the protection lower than that afforded by the other infectious fevers. The observations of Potain, however, would imply that the protection is considerable. He relates a case which occurred in the Hôpital de la Charité, which was the first in which he had personally attended the same person in two attacks of typhoid fever. The first attack occurred in January, 1888, and lasted twenty-one days, and was in all respects an ordinary case of the disease except that the eruption was unusually well marked. Quite recently (the journal is dated July 13, 1892) the same patient returned to the hospital, had a severe attack of enteric fever, and died on the twentieth day.

Chomel, in 134 cases, saw but one individual attacked twice. Trousseau saw two, Budd four, and Bartlett three. In all, Potain was able to find twenty-six cases of double attack, and in only ten of these had the patient been seen both times by the same physician. Double attacks seem to be more frequent in Germany, for Lorentz reported nine instances in 405 cases, and Eichurst twenty-eight instances in 666 cases.

Brouardel reports four patients in the same house attacked with typhoid fever, all of whom had previously had the disease. Of these the father, aged 58, had had the disease at 18; the mother, 45, had had the disease also at 18; the son, 26, had had the trouble three and one-half years before; and the servant had had an attack five years before. The older people had severe attacks the second time, while the younger people had mild attacks, possibly indicating that the immunity conferred by the first attacks had decreased as the years advanced. Potain believes that the form which the case takes depends less upon the nature of the infection, than upon the predisposition of the individual.

HYPODERMOKLYSIS.—(Max Hildebrand.) About three years ago Dastre and Loye experimented upon dogs and rabbits injecting directly into the veins normal salt solution, that is, a solution of 6 parts per one thousand of common salt in water. If the solution is injected no more rapidly than the kidneys can excrete it, no harm results, and for a healthy dog this was found to be 1 drachm of the solution for each pound in weight of the animal, in fifteen minutes. If the injection is made too rapidly, it proves fatal to the animal. While the injection is going on, the urine of the animal becomes gradually paler, and diminishes both in specific gravity and in its mineral constituents until it is almost similar to the fluid injected. In this way the tissues of the body are, as it were, washed out, and more urine is carried off than would have been possible without the injection. Albuminuria does not occur, but danger may result from overtension, if the right ventricle be weak. Roux and Yersin have noted some bad results in animals, and consequently the method could not be employed in man. Cantani, however, has suggested the introduction of the normal physiological salt solution under the skin and has named this process "hypodermoklysis." It was originally intended for use in cholera, and after severe hæmorrhage, but is evidently applicable where it is desirable to hasten elimination through the kidneys, as in uræmia, typhoid fever, cholera, tetanus, etc.

The method of operation is simple. A glass vessel containing 30 to 40 ozs. is filled with a sterilized solution of 7 parts of sodium chloride and 100 parts of water (about 3½ grs. to the oz.). The temperature should be about 110° F. A glass siphon leads through a tight stopper from the vessel to an India rubber tube, ending in a large-sized trocar. A glass pipe, filled at the upper end with sterilized cotton, leads to the bottom of the vessel for the purpose of admitting the necessary air. It is unnecessary to add that all parts of the apparatus should be carefully sterilized. The best place for the injection is the abdomen. As soon as the trocar is pushed through the skin into the cellular tissue, the saline solution is injected by holding the glass vessel about 4 or 5 feet above the abdomen of the patient. The time required for infusing 30 ozs. is about five minutes. While the infusion is going on, a tumor is gradually formed, the contents of which are absorbed by the cellular tissue in about three hours. The formation of the tumor is painful from the tension of the skin, but in many cases where the operation is performed, the patients are in a semi-comatose condition.

The effect of the operation in some cases is surprising. Where only a few minutes before pulse and respiration had ceased, and all hope was abandoned, a perfect change may take place, and a rather abrupt inspiration indicates the return of the patient to life. In other cases the benefit is shown more slowly by increased diuresis and lowered temperature. Sahli, of Berne, has used the process with excellent results in uræmia and in typhoid fever. It has also been successfully used in septicæmia, diabetic coma, gastric and intestinal ulceration and anæmia. Hildebrand has employed it with success in two cases of chloroform asphyxia, after electricity and artificial respiration had failed. —*Occidental Medical Times*, June, 1892.

DELIGATION OF THE COMMON ILIAC THROUGH ABDOMINAL SECTION. OXYGEN AN AID TO ANÆSTHESIA.—The *Medical Press and Circular* states that the first operation of this kind ever performed in Ireland, was recently done by Mr. O'Grady at the Mercer's Hospital of Dublin. A male, aged 38, having a large iliac aneurism, was admitted to the ward at the termination of a prolonged attack of delirium tremens. He had chronic bronchitis and a feeble heart. The tumor had existed for seven or eight years—a statement of the patient not corroborable in any way.

Anæsthesia by chloroform was obtained by Dr. Auchinleck, who also had recourse to oxygen, from time to time, as the vital powers seemed to fail. The operation was a difficult one, as the abdominal walls were excessively thickened, and the tissues surrounding the tumor were closely matted together. The ligature was passed around the artery and tied at a point about 1½ inch from the bifurcation. The

operation was completed without misadventure and for a time the patient was in a promising condition. But his bronchitis increased and his heart weakened, and he died. The writer of the account states that this operation has been recorded not more than three times in all countries.

NECROLOGY.

DR. FRAZER C. FULLER, of New York City, lost his life in consequence of a fall from his horse, while at the State Camp at Peekskill. He was a member of a troop of militia and on summer camp-duty at the time of his injury, which was a fracture of the leg. A short time after his removal to his home pneumonia set in, followed by pleurisy and septicæmia. He was born in Boston in 1860. He was graduated from the Columbia College Medical Department about ten years ago. He was an interne at Bellevue Hospital for a year, and not long after was appointed to the visiting staff at Charity Hospital. He was prominent in the scientific work of the Neurological and Pathological Societies, and a frequent contributor to the medical journals. His accidental death was a most unexpected and mournful event to a large circle of acquaintances and patients.

DR. LUTHER P. KENNEDY, of Atlanta, Georgia, died early in June, at his former home at Due East, South Carolina. He was one of the editorial staff of the *Atlanta Medical and Surgical Journal*, and an assistant to the chair of obstetrics and gynecology at the Atlanta Medical College. He was graduated from Erskine College and a post-graduate student for one year at the Johns Hopkins University. His medical degree, obtained in 1887, was that of the New York University Medical Department. He spent a year or more in the hospitals on Blackwell's Island and elsewhere near New York City. The indications were unmistakeable that Dr. Kennedy would not only reach a high place in his profession, but also become a most effective medical teacher. He was a close observer and student and was able to impart his knowledge to others in a terse and forcible diction. His final illness was the result of an exhaustive attack of typhoid fever.

BOOK REVIEWS.

THE MODERN MATERIA MEDICA, for Pharmacists, Medical Men and Students. By HENRY HELBING, F. C. S., London, Eng. Third edition. Lehn and Fink. 1892. New York. 8vo. 212 pages.

The claims of the publishers regarding this little handbook are that it contains the latest corrections and additions regarding the new remedies that come to us from Germany, chiefly. The new drugs, asaprol and diaphtherin—now about a month old—are among the articles described in this third edition. The older ones, concerning which new points of development have been brought to light, have been written up to date and the matured opinions of many observers introduced. Some of the more lengthy descriptions have been rewritten throughout in the light of recent clinical reports. The amount of patience on the part of the editor in his researches is evidenced by the fact that the index contains six hundred references to the chief new remedies and their synonyms. On this account the book makes itself especially attractive to the busy practitioner, and also to the professor or teacher whose memory is fickle on the points of coal-tar product chemistry.

Part II of this book, called an Appendix, contains notes of the non-synthetic remedies, and some others, that seem to require a less detailed description. There are tables of considerable value in the afterpart of the book, as Demme's dosage of antipyretics for children; solubility of the synthetic new remedies; melting and boiling points of those substances in centigrade degrees. The author adverts to the very persistent, though almost unavailing, search after a synthetic substitute for quinine, as the probable occasion of a vast number of serviceable medicaments, external as well as internal. He says "Since the time when the modern chemist first became fired with the ambition to win fame and fortune, at one stroke, by the synthesis of quinine, the number of remedies turned out yearly from the chemical laboratory has gone on speedily increasing, and if the original aim of the work is still unaccomplished—as the process of Grimmaux and Arnaud is but a partial solution of the problem—yet among the very considerable number of compounds produced, some have been found capable of replacing the natural alkaloid in many cases, while in others they seem to be even superior to it in therapeutical activity, reliability or safety."

The publications on materia medica, averaging as they do a book a month, are the most active present competition in the field of medical literature. Their volume is something unprecedented and well-nigh bewildering. This small treatise, on the contrary, has the advantage of clearness, compactness and singleness of purpose.

TRANSACTIONS OF THE AMERICAN SURGICAL ASSOCIATION, Vol. ix. Edited by J. EWING MEARS, M.D. Philadelphia: Printed for the Association by Wm. J. Dorman, 1891. Cl. 8vo, pp. 508.

Most of the addresses and papers in this volume have been printed in the current medical journals, and are already common property, but we have them here collected in one volume, thus constituting a series of surgical essays of the highest class, by surgeons of National reputation.

President Mastin, in concluding his excellent address, recommends the project of establishing a monument to the late Professor Samuel D. Gross. A statue at Washington is the form commended.

The necrology report includes biographical sketches of Dr. Truman H. Squire, Prof. v. Volkmann, Prof. v. Nussbaum, Dr. Richard J. Levis, Dr. David Prince, Prof. Chas. T. Parkes, Dr. T. B. Reed and Prof. H. J. Bigelow.

The volume should be found in the library of every progressive surgeon.

PREVENTION OF BLINDNESS IN RHODE ISLAND.—The following enactment was passed April 19, 1892, by the General Assembly of Rhode Island, its intent being to diminish the amount of ophthalmia neonatorum, and its sequels, which has its origin in grossly ignorant midwifery.

SECTION 1. Should any midwife, or nurse, or person acting as nurse, having charge of an infant in this State, notice that one or both eyes of such infant are inflamed or reddened at any time within two weeks after its birth, it shall be the duty of such midwife or nurse, or person acting as nurse, so having charge of such infant to report the fact in writing within six hours to the health officer or some qualified practitioner of medicine of the city or town in which the parents of the infant reside.

SEC. 2. Every health officer shall furnish a copy of this act to each person who is known to him to act as midwife or nurse in the city or town for which such health officer is appointed, and the secretary of State shall cause a sufficient number of copies of this act to be printed and supply the same to such health officers on application.

SEC. 3. Every person who shall fail to comply with the provisions of this act shall be fined not exceeding one hundred dollars or imprisoned not exceeding six months, or both.

SEC. 3. This act shall take effect July 1st, 1892.

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:
PER ANNUM, IN ADVANCE $5.00
SINGLE COPIES . . . . . 10 CENTS.

Subscriptions may begin at any time and be sent to
THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
No. 68 WABASH AVE., CHICAGO, ILLINOIS.

All members of the Association should send their Annual Dues to the Treasurer, RICHARD J. DUNGLISON, M.D., Lock Box 1274, Philadelphia, Pa.

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SATURDAY, AUGUST 6, 1892.

THE PRESENT STATUS OF THE TREATMENT OF POTT'S DISEASE.

The routine treatment of Pott's disease by this or that mechanical device can hardly be said to any longer obtain among orthopedic surgeons.

In choosing the plan of treatment for any given period it is customary to take into consideration the location of the disease, its tendency to destruction or progress towards repair, the severity of the symptoms, the complications, the age of the patient, the care which he may be able to command, and many other factors, such as materials at hand and the surgeon's skill and experience in working them.

The plaster jacket, applied during partial suspension, is still more widely used than either of the other means of immobilization. The materials are at hand or readily obtainable, so there need be no delay in its application, and the responsibility of its construction and perfect fit fall on the surgeon himself. On the other hand, it gives less perfect immobilization than a well fitting leverage brace, and if used without recumbency during the period of progression of the destructive process, cannot be relied upon to check the increase of deformity. Other corsets and jackets of plastic material are more difficult of construction and less effective in immobilization.

The antero-posterior leverage brace of soft steel grasps the pelvis above the greater trochanters, and the arms and upper chest above, and exerts as strong a leverage action as the soft parts will tolerate directly over the transverse processes of the vertebræ involved in the disease. When properly applied, it is probably the most efficient means of immobilization.

The cuirass (shellback) of steel and leather, gains something in effectiveness by extending its leverage to grasp the upper part of the thighs, but loses somewhat more in immobilization by distributing its leverage over the ribs, which are movable, instead of concentrating it upon the immovable transverse processes of the vertebræ. Each of the three plans aims to immobilize the area of disease by limiting the movements of the whole trunk, each supports more or less perfectly the superincumbent weight by leverage action, and diminishes the traumatism of the jars of locomotion. Used as ambulatory apparatus, neither fulfils all the indications for treatment in all cases.

It is no longer believed that traction made by suspension can be maintained by the plaster jacket or any other ambulatory apparatus, and all braces with crutch arrangements arising from a pelvic girdle have long since passed out of use. Traction, however, is still used to relieve pain and reduce deformity while patients are kept in recumbency in both stationary and portable beds, and thus used is a valuable agent.

The principles of treatment may be summed up as follows: Immobilize the area of disease continuously from the commencement of the treatment until a cure is effected; remove the superincumbent weight and avoid the traumatism of jars by keeping the patient recumbent until destruction has ceased and repair commenced; give good food, pure air and sunshine in abundance.

At another time we will discuss the treatment of the complications, namely: the deformity, abscesses and paraplegia.

GOLD CURE SPECIFIC.

The notoriety of this empiricism is rather a sad reflection on the general intelligence of the public, and also of many so-called physicians.

Charlatanism managed with psychological skill, assuming some discovery in science, that is a rational possibility, and covering up the real motives, is always attractive to the credulous and non-experts. But when it boldly proclaims theories outside the range of science and common sense, to be accepted entirely on faith, and the whole supported on a great pecuniary scheme to enrich the authors, it is difficult to understand how it should receive any serious attention. Compared with other empiric schemes, the bichloride of gold is very inferior in methods of management and assumed reality. It is the same old quackery, bold, ignorant and dogmatic, without a single original feature. The wild hysterical claims of cure by those who have used the secret remedy, is the same old story that is heard after every church and temperance revival. This posing as cured men by this or that means, with certificates from clergymen and others is common history in every community. It is a curious fact that mystery and concealment should add to its popularity, and still more unexplainable that both pulpit and press should be caught by such means. It is not strange that ine-

briates who have received benefit from the treatment should become enthusiastic as defenders of its merits, particularly when it is a pecuniary object to do so. The rapid growth of branch institutes for the treatment is purely commercial, and are managed in nearly all cases by so-called cured men. Precisely what the secret remedy is used under the skin, and other means, are of no interest except psychologically, and as phases of the evolution of the drink evil.

The success of the author financially in this country has developed the same boldness to conquer "other worlds." But, unfortunately, he assumed that entrance into societies and scientific support was a merchantable thing, to be bought. Also that the medical, as well as the secular press, was governed by public opinion, and ready to sell out when the price was offered. This was the "Waterloo for Keeleyism" abroad. The *British Medical Journal*, the *London Lancet*, the *Medical Press*, and several of our large dailies have denounced the whole scheme as the boldest quackery that has appeared for a long time. In the meantime, a house has been opened in London for the cure of inebriates, and the secret remedy offered for sale. An analysis of the remedy has been made, and found to contain no gold, but 27½ per cent. of absolute alcohol; and this statement is not denied by the managers of the cure. The Berlin authorities refused to permit a branch institute to be opened in Prussia, unless the remedy was first submitted to the public chemist for analysis. In all this the gold cure managers have displayed stupidity rarely seen among the common quacks. No attempts have been made to cover up the real pecuniary objects of enlisting capital and organizing companies for the sale of rights and remedies, as a matter of great profit. This combination of charity, business and science is new to our English relatives, and of course rejected. There is one feature of this gold cure specific worthy of study, that is the hurry and dash of the movement. Doing its work in three or four weeks, sending out the patient inflated with an idea of permanent cure, filled with extravagant expectancies and hope, and receiving full pay for this operation. This shows rare skill and full recognition of the brevity of this movement. The bichloride of gold will soon be among the things of the past; and also be a source of wonderment how it could grow and attract attention in this materialistic age.

THE SURGEONS AT HOMESTEAD.

In the report of the punishment of PRIVATE IAMS, at Homestead, as it appeared in the daily press, it seems that the colonel ordered him triced up by the thumbs, and the surgeons to stand by and see that no harm befell him.

In executing this order the surgeons took turns at standing on a chair, and counting the pulse of the man, and when it reached 120 ordered him to be cut down.

It is not the province of this JOURNAL to discuss the action of the colonel in ordering the punishment which he did. Whether he exceeded his powers or not, is the duty and privilege of others to determine. But the action of the surgeons becomes a fit subject for discussion by the medical profession. It is generally admitted that medicine is the healing art, and that the great duty of the physician is to relieve pain, and not to inflict it, except it be for the purpose of saving life or cutting short other suffering.

Nowhere can it be claimed that it is ever within the scope of their professional duties to be a party to brutality. Military medical officers are appointed as professional men, for the purpose of exercising their profession, and in the exercise of that profession they are not subject to the orders of the line officers. What medical man would carry out a line of treatment in a given case because ordered to do so by his superior officer in the line? If the colonel had ordered these medical men to cut off the leg of PRIVATE IAMS, no doubt they would have refused, because it would have encroached upon their medical functions. By what process of reasoning these surgeons determined that the colonel's orders had been complied with when the unfortunate man's pulse reached 120, it is hard to see. Why did they not order him down when his pulse reached 100? Or when it began to rise above normal? Or better yet, why did they not let the colonel himself decide when the punishment was complete, and then step in to extend relief so far as they could?

Suppose they had blundered, and let the man hang up so long as to end his life, who would have been guilty of the murder, they or the colonel? We care not what military law may be, it was the duty of these surgeons as medical men to refuse to carry out the orders of the colonel, to tender their resignations on the spot if necessary, or even to suffer punishment for insubordination.

In their action, if it be correctly reported, the profession has been outraged.

FARM COLONY FOR EPILEPTICS.

After a defeat in 1891, a salutary enactment was secured in 1892, in the New York legislature on behalf of the epileptic poor of that State. The text of the act is as follows:

SECTION 1. The Commissioners of the State Board of Charities are hereby directed to select a suitable site in the State of New York, on which to establish an institution on the colony plan for the medical treatment, care, education and employment of epileptics.

SECTION 2. The said Commissioners of the State Board of Charities shall have power to receive by gift

or to contract for the purchase of such site for the location of buildings of said institution, subject however, to the approval of the next Legislature, to whom they shall report their action in the premises within ten days after the commencement of the session, together with plans and estimates for constructing buildings suitable for the purpose named in section one of this act; such site to include not less than three hundred acres, and such plans to provide for the accommodation of six hundred inmates and to admit such further extension of the buildings as may be necessary to meet future requirements of the State in providing for the epileptics.

SECTION 3. The said Commissioners shall be entitled to the payment of their traveling expenses while engaged in the performance of their duties under this act, and their account for such expenses shall be audited and paid out of the treasury, but they shall receive no compensation for their services. And the sum of one thousand five hundred dollars or so much thereof as may be necessary is hereby appropriated out of any moneys in the treasury not otherwise appropriated, payable on the warrant of the Comptroller, for the purposes of this act.

This act shall take effect immediately.

This is merely the entering wedge which it is expected will open the way for the establishment of at least one epileptic colony. A large sum of money will be needed yearly to carry the work forward from the point where this bill leaves it. At the present time there are considerable numbers of persons in the various county poorhouses, of all ages, suffering from varying grades of the disease, and almost entirely overlooked in the onward movement of charity as applied to the deficient class of citizens. As a rule, they have been without any proper care or treatment, and without training or employment, but the time approaches when every civilized State will be shamed into making an intelligent provision for this unfortunate, neglected class of patients.

EDITORIAL NOTES.

DR. CHAS. WARRINGTON EARLE, formerly connected with the College of Physicians and Surgeons, has been called to the chair of Obstetrics and Diseases of Children in Rush Medical College, recently made vacant by the death of the late Professor KNOX. Dr. A. C. Cotton, who has for many years been connected with Rush Medical College as an Adjunct Professor has been elected Clinical Professor of Diseases of Children.

PAN-AMERICAN MEDICAL CONGRESS.—On Thursday, July 15, Congress passed the Joint Resolution (Senate 76) as follows:

"*Resolved, etc.* That the President of the United States be and he is hereby authorized and requested to invite the several Governments of the Republics of Mexico, Central and South America, Haiti and Santo Domingo, and the Kingdom of Hawaii, to send official delegates to the meeting of the Pan-American Medical Congress to be held in the City of Washington, September 5, 6, 7 and 8, A. D. 1893."

UNIVERSITY OF VERMONT MEDICAL DEPARTMENT.—Important changes in the curriculum of the college at Burlington have been ordained. The length of the regular term has been ordered to be six months instead of four. It will begin in the last week in January. The preliminary course will not be resumed for the present; the lecturers who formerly participated in the preliminary term work will be given places in the regular corps, as vacancies arise. The special courses lately given to private classes will in large measure be made compulsory and become a part of the regular curriculum. Dr. W. B. Towles, of the University of Virginia, will continue to occupy the chair of anatomy, but the greater part of the practical instructions in this course will devolve on Dr. H. C. Tinkham, of Burlington. A class of forty-five students was graduated at the last Commencement.

FATAL WOUNDS FROM FENCERS' FOILS. TWO PHYSICIANS LOSE THEIR LIVES.—The *Lancet*, July 2, recently made mention of the death of an Italian physician in consequence of an accident received while fencing. Dr. Enrico Tanfani, of Florence, was considered one of the most promising of the young medical professors of that city. While at the Fencing School, pitted against a formidable antagonist, the foil of the latter had its button broken off, and a fatal lunge was made before the defect was noticed. His death was mourned by all classes, especially by the faculties of the military and medical training schools. With both of these he had been connected in a teaching capacity. His death took place June 14. About one month later, a very similar fatality befel an American physician, namely, Dr. Charles C. Terry, of Fall River. He was in the habit of taking weekly lessons in fencing, and his teacher was the instrumentality by which the fatal accident was produced. Dr. Terry was struck in the eye by a foil from which the button had unobservedly been broken. The weapon pierced the right eye and penetrated the brain. The victim fell unconscious at once, and he continued thus for about three hours and then died. The deceased was in his fifty-sixth year, a graduate of the Medical Department of Harvard, and for about thirty years a well-known practitioner of Fall River.

CHLORALAMIDE AS A REMEDY FOR SEASICKNESS.—The *British Medical Journal* has recently contained some letters from men like Graily Hewitt, Robert Barnes and Professor Charteris, regarding their professional experience as to attacks of sea-sickness. The last named writer has a letter in the *Journal* for June 18, asking medical attention to a solution containing thirty grains of chloralamide, and a like amount of potassium bromide, in an ounce of menstruum; this has thus far been used with advantage, by persons who have had to make short voyages, like trips across the Channel or from Fleetwood to Belfast. This combination is dubbed by the author "chlorobrom." The passenger is recommended to take a podophyllin pill for one or two nights before the date of sailing, and when on board to remain for a time before rough water is reached, in a horizontal position with eyes shut, and to take no food on short trips. Dr. Charteris has received a letter from a medical man, who made the trip from Leith to Hamburg, wherein the correspondent states that the chlorobrom solution enabled him to stave off his old enemy—sea-sickness—by going to his berth early and getting a sound sleep, through the influence of the drugs, almost before the vessel got out into rough water. He was not sea-sick after he awoke, and was able to go to the table every meal, although the boat pitched greatly. On his next trip he avoided taking the medicine and he was very sick. A trip from Glasgow to Shetland was rendered unusually free from nausea and retching by means of small doses of the chlorobrom. The tossing of the steamer was violent enough to wake him up at night several times, but he experienced a few minutes of pleasurable reposeful feeling, which the rolling of the steamer seemed rather to enhance, and then he fell asleep again. A lady on the same trip, who had a like treatment, remarked spontaneously that during her intervals of wakefulness, "she enjoyed the

rolling of the steamer." When the trip was at an end the patients were exceptionally free from exhaustion and weariness; some of them, in fact, reported themselves as "feeling quite vigorous and refreshed." The dose of chloralamide may be stated for an adult to be from a half-drachm upward, not exceeding one hundred grains in twenty-four hours. Professor Charteris closes his letter by saying that he has no hesitation in commending the drug to all who contemplate and who dread short and rough sea-voyages. Of longer transatlantic excursions he has not yet received details that will justify any sanguine expression. The reports thus far obtained warrant him in affirming that—

"1. This solution is absolutely safe and harmless, and that it produces a refreshing sleep without any baneful after-effects.

"2. When judiciously administered it prevents, and in all cases alleviates sea-sickness." The effects of the drug may be expected to begin in from thirty to ninety minutes after dosage; and the duration of sleep thus induced will be from five to eight hours. The quality of sleep is said to be refreshing, natural and devoid of disagreeable sequels in nearly all cases.

NICKEL CARBON-OXIDE.—Ludwig Mond reports a remarkable compound of nickel discovered by him. When that métal is exposed to the action of carbonous oxide gas at ordinary temperature the metal is acted on and converted into a volatile compound; very unstable and explosive. On exposing a heated body to it there is a deposition of pure nickel. When injected into the circulation of an animal, the bodily temperature is lowered in a marked manner. Other singular properties are said to be possessed by this newly discovered substance, which is already in the hands of physiologists for purposes of confirming former and of making new observations.

HOW TO CHOOSE A MEDICAL SPECIALTY.—Dr. William Osler delivered an address, in May last, before the American Pædiatric Society, discoursing upon the growth of medical specialisms, during the present generation. He therein points out the advantages of a slow growth and a judicious differentiation, but he is also keenly alive to those disadvantages that must necessarily follow an insecure foundation. He believes in a wide field of study, and a goodly period of time spent in it, before the neophyte is admitted into the ranks of the specialists. The complexity of the human body, and the close correlation of all its finer parts with one another, invite the profession to the formation of specialties, and to form them with a high regard for our undivided economy. Dr. Osler quotes from Plato in this connection:

"Plato must have discussed this very question with his bright friends in the profession—Eryximachus, perhaps—or he could never have put the following words into the mouth of Socrates: 'I dare say that you may have heard eminent physicians say to a patient who comes to them with bad eyes, that they cannot cure his eyes by themselves, but that if his eyes are to be cured, his head must be treated; and then again they say that to think of curing the head alone, and not the rest of the body also, is the height of folly. And arguing in this way they apply their methods to the whole body, and try to treat and heal the whole and the part together. Did you ever observe that this is what they say?' This paragraph embodies the law and the gospel for specialists."

An undesirable result may always be expected when the attempt is made to manufacture a complex construction, with materials that are ill-seasoned, and in too short a space of time. The West Africans have an adage which is pertinent to those who rush so rapidly into the specialties. It says in effect: "An unfortunate spectacle is a blind man traveling on the wrong road, carrying a load of rotten nuts in a bag that is full of holes."

Dr. Osler considers that the incentives to the speedy adoption of a specialty may appear strong ones, and nevertheless be unworthy of acceptance. He says: "The more speedy success that ofttimes comes from the cultivation of a specialty invites young men to early adopt a partial line of work. How infrequently are we consulted by sucklings in our ranks as to the most likely branch in which to succeed; far more frequently are we addressed another way—a student with the brazen assurance that only ignorance can give, announces that he intends to be a gynæcologist or an oculist. No more dangerous members of our profession exist than those born in it, so to speak, as specialists. Without any broad foundation in physiology or pathology, and ignorant of the great processes of disease, no amount of technical skill can hide from the keen eyes of colleagues defects that too often require the arts of the charlatan to hide from the public."

Dr. Osler says to the young would-be specialist that a strong position depends upon a strong foundation, and he holds up the late Sir William Bowman, as the great modern exemplar in specialism, who was so preëminent in several departments that the identity of the physiologist is almost lost in the ophthalmologist.

PHILADELPHIA LETTER.

The most prominent subject of discussion, in all circles, but possessing special features of medical interest during the past week, has been the weather. Although as an ordinary topic of conversation, it has been declared to be "bad form," yet when the temperature gets up to par, or above, comment is justifiable, of course within the usual limits of polite language. Moreover, anything stronger than this would be useless, for if abjurgation of the weather or the weather bureau had the slightest influence upon mean temperature and general humidity, it can be taken for granted that the hot spell would have terminated in a much briefer time than it did. The five days preceding July 26, 1892, will be memorable over a large section of the eastern United States for sustained high temperature, remarkable magnetic disturbances, and thunder storms of almost cyclonic violence. Deaths from lightning were reported at a number of places. On the 23d there was a fine display of the aurora borealis. Cases of sunstroke and heat exhaustion during these few days occurred in our northern cities by hundreds, and scores of deaths were directly or indirectly caused by the heat. The morbific influence, as usual, was strikingly manifest in the greatly increased death-rate, especially among young children. On the 26th of July, the thermometer at the office of the United States Weather Bureau in this city, indicated 100.8° F. The only higher temperature previously recorded at this office was on September 7, 1881, when it went up to 101.5°. These are the highest figures for Philadelphia within fifty years. At the Pennsylvania Hospital the temperature was 102° on the 26th, ult. The number of deaths from all causes up to three o'clock that day (July 26) was 103, and from Saturday noon to Tuesday noon, 350, of which at least 75 were ascribed to the heat, to which might be added 6, which were reported during the next twenty-four hours and many others which remained under treatment. In spite of the fact that the thermometer was undoubtedly higher in this city than in New York or Chicago, the mortality was not correspondingly great for the reason that the laboring portion of the population live in greater comfort here, largely occupying their own houses, they are less crowded and have better ventilated sleeping rooms; not only have they private bath rooms at home, but also have access to public bathing and swimming pools established by the city authorities in the thickly settled

portions of the city. Owing to the well supplied markets, the food of the laborer is of better quality and better prepared than in some communities, and there is probably less intemperance. If it be true, as stated, that uncomfortable homes and indigestion from badly cooked food, are the main influences in leading the laborer to alcoholic indulgence, the explanation is at hand for his better social condition here, where, moreover, with the aid of the building society he can buy his own house and start out in his career as a capitalist. All of which has an effect upon the health and vigor of the workman and consequently may appropriately appear in this correspondence; more especially since indulgence in alcohol and depressed vitality are acknowledged predisposing causes of insolation. The Pennsylvania Hospital, and in fact most of our city hospitals where the grounds around the buildings admit, have erected tents on the lawn under the trees for the treatment of victims of the heat, and these have, at times, during the past week, furnished scenes of activity which recalled a field hospital during the war after an engagement, only *minus* the blood. The treatment was mainly refrigerant, the object being to abstract heat as rapidly as possible. The patient, nude, with the exception of a towel across the loins, is rubbed with ice and with a large watering pot showered with ice water, at the same time rubbing the surface to keep up the circulation of the blood. When there is marked determination of blood to the head or internal organs dry cupping is resorted to, and hypodermic injections of small doses of strychnine or cocaine if there is weakness of the circulation. As soon as the temperature has fallen to normal, the patient is rubbed dry and covered with a blanket, and bromides or antipyretics administered according to circumstances. This plan of treatment has been used here for twenty years or more and gives very satisfactory results.

Reference has been just made to the free use of baths in this city; in fact complaint has been recently made that the supply is running low and the householders have been warned against waste of the precious fluid. Although we are now using over 140,000,000 gallons daily, a larger quantity per capita than any other large city, the supply ordinarily is largely in excess. At the rate that we are increasing the demand it is estimated that in less than ten years, we shall need 500,000,000 gallons daily. This city is using nearly as much water now as London, which is four times as large in population. The new Reaborough reservoir adds a capacity of 148 millions to the 869 millions, or a total storage of over 1,017 millions of gallons of water, for which the upper Schuylkill is an abundant supply for the present. To this may be added a variable amount taken principally by private individuals or institutions from deep artesian wells, and as an extra source to large manufacturing establishments in the northeastern part of the city, the Delaware affords a practically inexhaustible quantity. It is estimated, however, that at the present time there is a daily waste of 30 to 40 million gallons, owing largely to leaking attachments in houses, and to the lavish use in washing pavements, which has been forbidden during the present short supply. There will probably be a thorough examination made of the entire system and the general introduction of water meters into private houses is now under consideration.

A new departure has been taken by our city government with regard to sectarian medicine. Mayor Stuart has just signed a bill appointing a corps of homœopathists, consisting of one from each poor district of the city, 25 in all, to share, with the regular physicians previously appointed, the medical care of the city poor. If this act were accompanied by one defining the peculiar characteristics of the homœopathist and compelling him to confine himself to so-called homœopathic practice, some ultimate good might result, to scientific medicine. However much we may commiserate the sick poor who will ask for mica pains with medicine compounded *sec. art.* and receive silica 3x with doubtful milk sugar, we cannot help appreciating the refreshing coolness of the whole procedure just at this particular time. If it would only lead to a fair comparison between the results of treatment of patients by this body of sectarians and patients in similar circumstances having the immense advantage afforded by non-sectarian, scientific physicians, the test would be welcomed by the latter as an object lesson to the community. Some persons, however, are utterly inaccessible to argument or demonstration. Only a short time ago the daily papers reported a disturbance between a certain homœopathic children's hospital in this city and the physicians who did not confine themselves to so-called homœopathic remedies, and when the managers passed a rule that such peculiar remedies should only be used in this hospital, the medical staff resigned in a body rather than obey the law of the institution. Such is modern homœopathy!

To turn to a more profitable subject, it is worth noticing, that Dr. William Duffield Robinson, who for more than ten years has been physician to the Eastern Penitentiary has recently published the results of his analysis of the records of this institution for a period covering sixty years and over 15,000 cases. Taking the records as fairly indicative of the total amount of crime and representative as regards the convictions of criminals of a certain area of the country from which deductions may be justly drawn applicable to some vexed questions in penology, he proceeds to the following conclusions: With regard to the reformation of criminals, he first limits the word "reformed" to the sense of being "neither Christianized nor moralized but that the habit of crime doing has been stopped." He answers that in this sense of the word reformations are frequent. He claims that persons of 60 years of age are about eight times as trustworthy as others only 25 years of age. "Putting this in another way, of eight people who are criminals of the penitentiary grade, 20 to 25 years of age, when they shall have become 60 to 65 years old, seven will have reformed, and only one remain criminal." This has much encouragement in it for philanthropists engaged in this work. His results give little support to the "hardened criminal" idea. It is the young man whose turbulent passions have not been disciplined by experience and punishment, who is the readiest to commit crime. There are, it is true, certain special offenses, to which those more advanced in life seem peculiarly addicted, but their number is small. He finds homicide, forgery, horse stealing and counterfeiting, all showing during the last decade a marked decline. Even robbery and burglary show a falling off and larceny is decreasing in frequency. On the contrary, embezzlement is rapidly increasing and sensual offenses and crimes of personal violence are of more frequent occurrence. Without making further extracts, the following statistics of relative proportion of crimes affords a striking summarization for serious consideration. "Of the total of 15,005 sentences to the Eastern Penitentiary during sixty years, there were for thefts and frauds, including larceny, false pretences, receiving stolen goods, forgery, counterfeiting, robbery, burglary, fraudulent written instruments and the like 77.19 per cent.

"For all personal assaults, including assault and battery in its different forms, mayhem, manslaughter, poisoning and murder, 12.66 per cent.

"For all malicious crimes, including malicious mischief, arson and perjury, 3.05 per cent.

"For all sensual crimes, 5.40 per cent.

"For all breaches of statute law, such as carrying concealed

weapons, sending challenges, tramps, illegal voting, illicit liquor selling and smuggling, 1.16 per cent.

"For felonies and misdemeanors unspecified, 1.16 per cent. As showing what proportion of reconvictions occur, we find that the 15,005 sentences represented 12,895 individuals. Of these 9,248 have been convicted once, 2,248 twice, 748 three times, 328 four times, 148 five times, 78 six times, 39 seven times, 18 eight times, 20 nine times, 4 ten times, 4 eleven times, 2 twelve times, 3 fourteen times and 1 for each of the remaining numbers of times up to 22."

In the summary issued for the week ending at noon July 30, the total number of deaths in this city were 870, the largest number, it is said, ever reported for a corresponding period. It is estimated that nearly one-half, or over four hundred deaths, were attributable to the excessive heat. In the meteorological summary, issued by Mr. Day, the Local Forecast official, U. S. Weather Bureau, this statement is made with reference to the temperature: "The prominent feature of the month just closed, was the unprecedented 'hot spell,' from the 24th to the 29th inclusive, with maximum temperatures of 91, 93, 101, 96, 96, 98, and daily averages of 82, 84, 88, 87, 86 and 89 degrees." No rain of any amount, excepting on the 14th, fell at this station for twenty-five days, following the 3d of July. On the 30th and 21st, there were several thunder showers, with copious precipitation, thus relieving the threatened water famine. The total rainfall for the month was 2.97 inches; the average for 21 years for July being 4.54 inches, leaving a deficiency, therefore, of 1.56 inches. It may be mentioned as a matter of special interest that the official report contains the further statement that there were no days on which frost occurred during the month.

Dr. W. C. Hollopeter recently reported to the County Medical Society, two interesting cases of "mucous disease; chronic intestinal catarrh, with one autopsy." He expressed surprise that this condition has not received more attention. It should be separated from ordinary chronic intestinal catarrh in children, the literature of which is quite voluminous; the only author who distinctly outlines this particular form being Eustace Smith, who speaks of it as a sequel of whooping cough. Dr. Lewis Star also refers to it in "Diseases of the Digestive Organs in Childhood." The special symptomatic feature is the occurrence of constipation for several days, followed by profuse mucous discharges containing bacteria and salts, and accompanied by general wasting and tumid, band-shaped abdomen. In the fatal case, the lesions were found limited to the intestines. "The lymph- nodules or solitary follicles of the whole of the colon and part of the small bowel, the ileum, were in an inflammatory condition, and in many there existed deep ulceration." This envolvement of the small bowel is quite rare and is found only when intestinal disease has a protracted cause. Follicular ulceration of the intestine is itself an unusual occurrence and more especially so, when found in the small bowel. The ileum in the case reported had a worm eaten appearance owing to the numerous enlarged and ulcerated nodules. Usually the ulcers were not above 1-6 to 1-4 of an inch except where several had coalesced, they extended through the mucosa in the sub-mucous tissue. The reporter in conclusion called attention to the fact that this disease is separated from ordinary catarrhal inflammation by its clinical course and pathological appearances. The discharges are usually alkaline. The disorder is not necessarily a sequel of whooping cough or a consequence of second dentition, but may occur after any depressing disorder. It is not necessarily incurable. As might be anticipated the strictest attention to diet is required in its treatment conjoined to measures calculated to build up the nutrition of the little patient.

The following real incident carries a moral for those who have the penetration to perceive it. Your correspondent happened to meet socially a gentleman who was subsequently ascertained to be connected in a reportorial capacity with one of our large daily journals. A certain prominent doctor's name was mentioned and the reporter innocently remarked "Oh yes, I know Professor Blank very well. He is a great friend of our paper, and whenever he had an interesting surgical operation he used to send us an account for publication." It used to be a matter of conjecture how the papers succeeded in getting reports of operations, but it is now clear that the evidence of enterprise is not all in favor of the daily press.

New York Board of Health; Its Sanitary Superintendent and the Late Advisory Board.

To the Editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

My Dear Sir:—In recent editorials and communications in various medical journals, in relation to certain changes in the New York Board of Health, it is said that Drs. Janeway, Jacobi, Prudden and Stephen Smith have resigned their honorary positions on that Board, on the ground that faithful medical employés have been brutally treated at the hands of pot-house politicians, and ordered to hand in their resignations; in other words, that reputable and competent men have been put out of office, without complaint or pretence of charges "for cause." . . . . Dr. Ewing, who has for twenty years, been Sanitary Superintendent, was forced out, of the important position, by President Wilson, it is alleged, in order that a politician or a person demanded by a political organization, might be put in his place.

They very candidly admit that the above is based on hearsay knowledge. As a matter of right and justice it is well that they do; for with one solitary exception, this whole statement is a malicious invention, without a word of truth in it, from beginning to end.

Drs. Janeway, Prudden, Jacobi, and Stephen Smith, did resign. Drs. Janeway and Smith have both "feathered their nests" as high officials in this same Board of Health, on high salaries, and with little to do, within the *thirty years*, during which time, it is alleged, "it has not been altogether free from the slime of the political serpent." (Ibid.)

It seems harsh to assume that they resigned, "because, faithful medical employees were brutally entreated to send in their resignations," for this is false. What they resigned for, is their own concern. There were no physicians ordered to resign by anyone. *One*, and only *one* was requested to hand in his resignation. This was Dr. Ewing, who was *paid* out of the city treasury, $4,800.00 a year. He succeeded Dr. Walter F. Day, *four* years ago, not *twenty*, as alleged; and, while trying to fulfil his public duties, carried on an extensive, private practice. His predecessor was not known as a practitioner.

He was requested to surrender his office, not on any "*pretense*," but on an open complaint and charge, that he did not visit the Pest-house on North Brother's Island.

Dr. Ewing was succeeded, by a gentleman utterly unknown in local politics, who commenced at the "bottom round of the ladder" nine years ago, in the Board of Health, and has by the dint of persevering effort, raised himself to the position which he now occupies, though, with nearly a thousand a year, less than the gentleman whom he succeeds was paid. Who does not know of Dr. Cyrus Edson, the present Sanitary Superintendent, as an indefatigable and progressive writer in everything pertaining to sanitary science?

So much for this "tempest in a teapot." In this connection it may be well to have it more generally known, that in this whole country there is no city, in which politics interferes less in sanitary matters, than in New York. If there is anyone who can cite a *single* instance in which a member of the medical staff has been removed on *purely* political grounds let him speak out, and I am sure it will be news to New York physicians. Yours respectfully,

TRUTH AND FAIRPLAY.